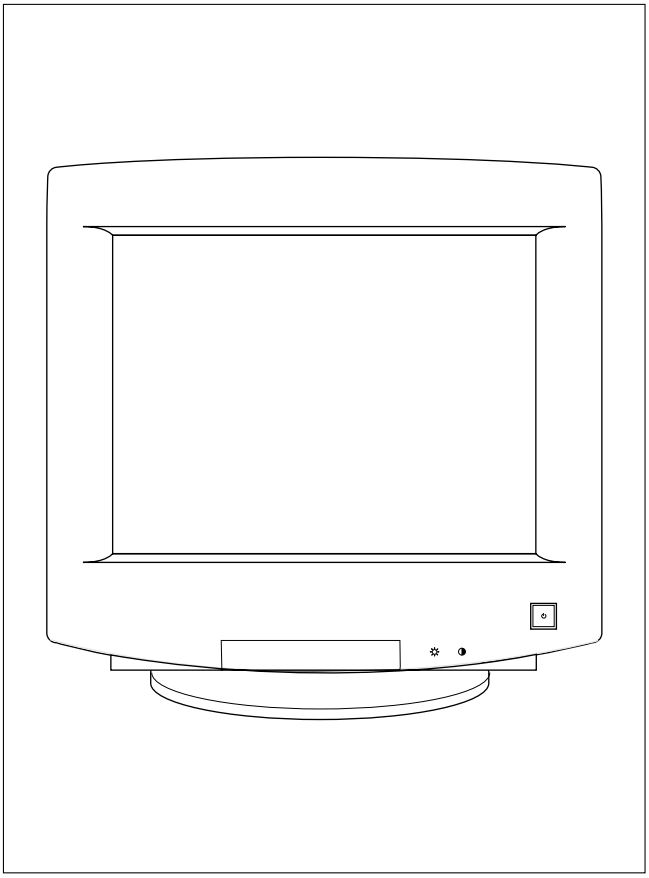
COLOR MONITOR

SERVICE Manual

COLOR MONITOR



CONTENTS

1. Precautions
2. Product Specifications
3. Disassembly & Reassembly
4. Alignment & Adjustments
5. Troubleshooting
6. Exploded View & Parts List
7. Electrical Parts List
8. Block Diagram
9. Wiring Diagram
10. Schematic Diagrams

Samsung Electronics Co., Ltd. December 1998.
Printed in Korea
Code No.: BH68-00076A

1 Precautions

1-1 Safety Precautions

WARNINGS

1. For continued safety, do not attempt to modify the circuit board.
2. Disconnect the AC power before servicing.
3. When the chassis is operating, semiconductor heatsinks are potential shock hazards.

1-1-1 Servicing the High Voltage VR and CRT :

WARNING: A high voltage VR replaced in the wrong direction may cause excessive X-ray emissions.

Caution: When replacing the high voltage adjustment VR, it must be fixed by a soldering iron after it is properly set.

1. When servicing the high voltage system, remove the static charge by connecting a 10 kohm resistor in series with an insulated wire (such as a test probe) between the chassis and the anode lead.
2. If the HV VR requires adjustment, (a) Replace the VR and adjust the high voltage to the specification. (b) Use a soldering iron to melt the adjustment cap on the HV VR to prevent any movement.
3. When troubleshooting a monitor with excessively HV, avoid being unnecessarily close to the monitor. Do not operate the monitor for longer than is necessary to locate the cause of excessive voltage.
4. High voltage should always be kept at the rated value, no higher. Only when high voltage is excessive are X-rays capable of penetrating the shell of the CRT, including the lead in glass material. Operation at high voltages may also cause failure of the CRT or high voltage circuitry.
5. When the HV regulator is operating properly, there is no possibility of an X-ray problem. Make sure the HV does not exceed its specified value and that it is regulating correctly.
6. The CRT is especially designed to prohibit X-ray emissions. To ensure continued X-ray protection, replace the CRT only with one that is the same or equivalent type as the original.
7. Handle the CRT only when wearing shatterproof goggles and after completely discharging the high voltage anode.
8. Do not lift the CRT by the neck.

1-1-2 Fire and Shock Hazard :

Before returning the monitor to the user, perform the following safety checks:

1. Inspect each lead dress to make certain that the leads are not pinched or that hardware is not lodged between the chassis and other metal parts in the monitor.
2. Inspect all protective devices such as nonmetallic control knobs, insulating materials, cabinet backs, adjustment and compartment covers or shields, isolation resistor-capacitor networks, mechanical insulators, etc.
3. Leakage Current Hot Check (Figure 1-1):
   WARNING: Do not use an isolation transformer during this test.
   Use a leakage current tester or a metering system that complies with American National Standards Institute (*ANSI C101.1, Leakage Current for Appliances*), and Underwriters Laboratories (*UL Publication UL1410, 59.7*).
4. With the unit completely reassembled, plug the AC line cord directly into a 120V AC outlet. With the unit's AC switch first in the ON position and then OFF, measure the current between a known earth ground (metal water pipe, conduit, etc.) and all exposed metal parts, including: metal cabinets, screwheads and control shafts. The current measured should not exceed 0.5 milliamp. Reverse the power-plug prongs in the AC outlet and repeat the test.

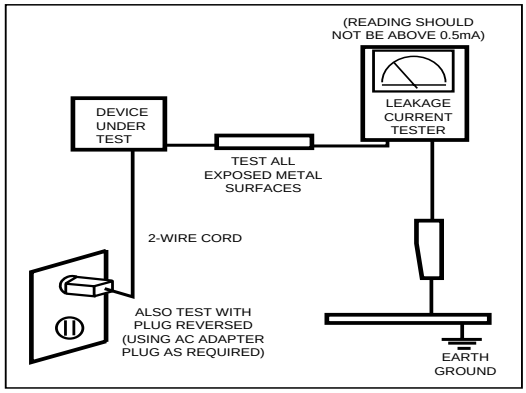

(READING SHOULD NOT BE ABOVE 0.5mA)
LEAKAGE CURRENT TESTER
DEVICE UNDER TEST
TEST ALL EXPOSED METAL SURFACES
2-WIRE CORD
ALSO TEST WITH PLUG REVERSED (USING AC ADAPTER PLUG AS REQUIRED)
EARTH GROUND

Figure 1-1. Leakage Current Test Circuit

1-1-4 Product Safety Notices

Some electrical and mechanical parts have special safety-related characteristics which are often not evident from visual inspection. The protection they give may not be obtained by replacing them with components rated for higher voltage, wattage, etc. Parts that have special safety characteristics are identified by ⚠ on schematics and parts lists. A substitute replacement that does not have the same safety characteristics as the recommended replacement part might create shock, fire and / or other hazards. Product safety is under review continuously and new instructions are issued whenever appropriate.

Components identified by ☢ on schematics and parts lists must be sealed by a soldering iron after replacement and adjustment.

1-2 Servicing Precautions

WARNING1: First read the "Safety Precautions" section of this manual. If unforeseen circumstances create conflict between the servicing precautions and safety precautions, always follow the safety precautions.

WARNING2: A high voltage VR replaced in the wrong direction may cause excessive X-ray emissions.

WARNING3: An electrolytic capacitor installed with the wrong polarity might explode.

1. Servicing precautions are printed on the cabinet, and should be followed closely.
2. Always unplug the unit's AC power cord from the AC power source before attempting to: (a) remove or reinstall any component or assembly, (b) disconnect PCB plugs or connectors, (c) connect all test components in parallel with an electrolytic capacitor.
3. Some components are raised above the printed circuit board for safety. An insulation tube or tape is sometimes used. The internal wiring is sometimes clamped to prevent contact with thermally hot components. Reinstall all such elements to their original position.
4. After servicing, always check that the screws, components and wiring have been correctly reinstalled. Make sure that the area around the serviced part has not been damaged.
5. Check the insulation between the blades of the AC plug and accessible conductive parts (examples: metal panels, input terminals and earphone jacks).
6. Insulation Checking Procedure: Disconnect the power cord from the AC source and turn the power switch ON. Connect an insulation resistance meter (500 V) to the blades of the AC plug.

   The insulation resistance between each blade of the AC plug and accessible conductive parts (see above) should be greater than 1 megohm.
7. Never defeat any of the +B voltage interlocks. Do not apply AC power to the unit (or any of its assemblies) unless all solid-state heat sinks are correctly installed.
8. Always connect a test instrument's ground lead to the instrument chassis ground *before* connecting the positive lead; always remove the instrument's ground lead last.

1-3 Electrostatically Sensitive Devices (ESD) Precautions

Some semiconductor (solid state) devices can be easily damaged by static electricity. Such components are commonly called Electrostatically Sensitive Devices (ESD). Examples of typical ESD devices are integrated circuits and some field-effect transistors. The following techniques will reduce the incidence of component damage caused by static electricity.

1. Immediately before handling any semiconductor components or assemblies, drain the electrostatic charge from your body by touching a known earth ground. Alternatively, wear a discharging wrist-strap device. To avoid a shock hazard, be sure to remove the wrist strap before applying power to the monitor.
2. After removing an ESD-equipped assembly, place it on a conductive surface such as aluminum foil to prevent accumulation of an electrostatic charge.
3. Do not use freon-propelled chemicals. These can generate electrical charges sufficient to damage ESDs.
4. Use only a grounded-tip soldering iron to solder or desolder ESDs.
5. Use only an anti-static solder removal device. Some solder removal devices not classified as "anti-static" can generate electrical charges sufficient to damage ESDs.
6. Do not remove a replacement ESD from its protective package until you are ready to install it. Most replacement ESDs are packaged with leads that are electrically shorted together by conductive foam, aluminum foil or other conductive materials.
7. Immediately before removing the protective material from the leads of a replacement ESD, touch the protective material to the chassis or circuit assembly into which the device will be installed.

   Caution: Be sure no power is applied to the chassis or circuit and observe all other safety precautions.
8. Minimize body motions when handling unpackaged replacement ESDs. Motions such as brushing clothes together, or lifting your foot from a carpeted floor can generate enough static electricity to damage an ESD.
9. ⚠ Indicates ESDs on the Schematic Diagram in this manual.

2 Product Specifications

2-1 Specifications

Item	Description	
Picture Tube:	17-Inch (43 cm): 16.0-inch (40.6 cm) viewable, 19-Inch (48.2 cm): 18-inch (45.8 cm) viewable, 0.20mm (Horizontal), 0.24mm (Diagonal) Dot pitch, Full-square flat-face tube, 90˚ Deflection, Anti-Reflection coating with Anti-electrastatic, Medium short persistence phosphor	
Scanning Frequency	Horizontal : 30 kHz to 96 kHz (Automatic) Vertical : 50 Hz to 160 Hz (Automatic)	
Display Colors	Unlimited colors	
Maximum Resolution	Horizontal : 1600 Dots Vertical : 1200 Lines	
Input Video Signal	Analog, 0.7 Vp-p positive at 75 Ω, internally terminated	
Input Sync Signal	Separate Sync : TTL level positive/negative Composite Sync : TTL level positive/negative Sync-on-Green : Composite sync 0.3 Vp-p ± 5%/negative (Video on Vp-p positive)	
Maximum Pixel Clock rate	205 MHz	
Active Display	CSE7839L; Horizontal : 306 mm ± 3 mm (4:3 ratio) Vertical : 230 mm ± 3 mm CSE9839L; Horizontal : 352 mm ± 3 mm (4:3 ratio) / 330 mm ± 3 mm (5:4 ratio) Vertical : 264 mm ± 3 mm	
Input Voltage	AC 90 to 264 Volts, 60/ 50 Hz ± 3 Hz	
Power Consumption	130 Watt (max)	
Dimensions	17”	19”
Unit (W x D x H) Carton (W x D x H)	16.3x17.5x17.2 Inches (415 x 445.7 x 437.3 mm) 21x22.3x21.6 Inches (535 x 566 x 549 mm)	18.4x19.6x19 Inches (468 x 499 x 483.2 mm) 22.6x23.2x22.8 Inches (573 x 590 x 580 mm)
Weight (Net/Gross)	17”; 40.8 lbs (18.5 kg) / 49.6 lbs (22.5 kg) 19”; 49.6 lbs (22.5 kg) / 58.8 lbs (26.7 kg)	
Environmental Considerations	Operating Temperature : 32°F to 104°F (0°C to 40°C) Humidity : 10 % to 80 % Storage Temperature : -4°F to 113°F (-20°C to 45°C) Humidity : 5 % to 95 %	

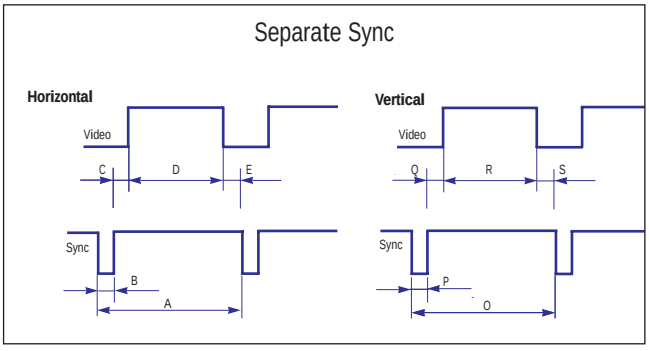
- CSE7839L/CSE9839L complies with SWEDAC (MPR II) recommendations for reduced electromagnetic fields.
- Designs and specifications are subject to change without prior notice.

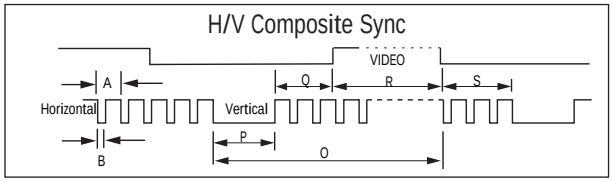
2-2 Timing Chart

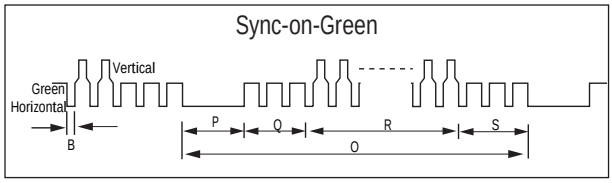
This section of the service manual describes the timing that the computer industry recognizes as standard for computer-generated video signals.

Table 2-1. Timing Chart (17")

Mode / Timing	IBM		VESA							MAC.
	VGA2/70 Hz 720 x 400	VGA3/60 Hz 640 x 480	640/85 Hz 640 x 480	800/85 Hz 800 x 600	1024/75 Hz 1024 x 768	1024/85 Hz 1024 x 768	1024/100 Hz 1024 x 768	1280/75 Hz 1280 x 1024	1280/85 Hz 1280 x 1024	832/75 Hz 832 x 624
fH (kHz)	31.469	31.469	43.269	53.674	60.023	68.677	81.400	79.976	91.146	49.726
A µsec	31.778	31.778	23.111	18.631	16.660	14.561	12.285	12.504	10.971	20.110
B µsec	3.813	3.813	1.556	1.138	1.219	1.016	0.988	1.067	1.016	1.117
C µsec	1.907	1.907	3.810	2.702	2.235	2.201	1.624	1.837	1.422	3.910
D µsec	25.422	25.422	5.222	14.222	13.003	10.836	9.037	9.481	8.127	14.524
E µsec	0.636	0.636	17.778	0.569	0.203	0.508	0.635	0.119	0.406	0.559
fV (Hz)	70.087	59.940	85.008	85.061	75.029	84.997	100.000	75.025	85.024	74.551
O msec	14.268	16.683	13.333	11.756	13.328	11.765	10.000	13.329	11.761	13.414
P msec	0.064	0.064	0.080	0.056	0.050	0.044	0.037	0.038	0.033	0.060
Q msec	1.080	1.048	0.427	0.503	0.466	0.524	0.516	0.475	0.483	0.784
R msec	12.711	15.253	12.800	11.179	12.795	11.183	9.435	12.804	11.235	12.549
S msec	0.413	0.318	0.027	0.019	0.017	0.015	0.012	0.013	0.011	0.020
Clock Freq. (MHz)	28.322	25.175	36.000	56.250	78.750	94.500	113.309	135.000	157.500	57.284
Polarity H.Sync	Negative	Negative	Negative	Positive	Positive	Positive	Negative	Positive	Positive	Negative
V.Sync	Positive	Negative	Negative	Positive	Positive	Positive	Positive	Positive	Positive	Negative
Remark	Separate	Separate	Separate	Separate	Separate	Separate	Separate	Separate	Separate	SOG



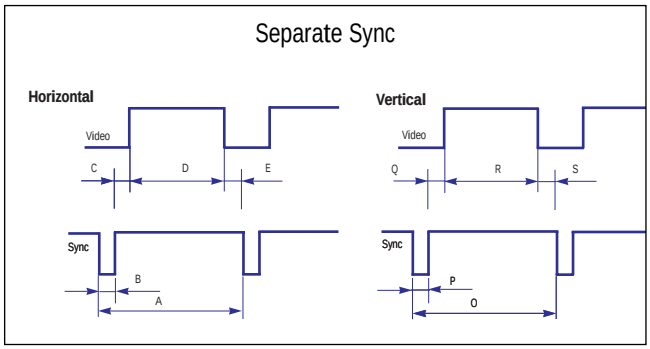


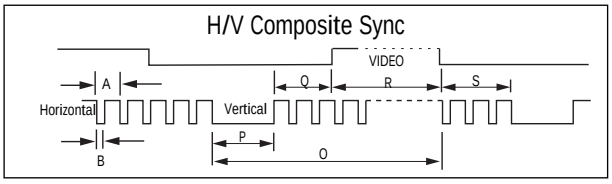


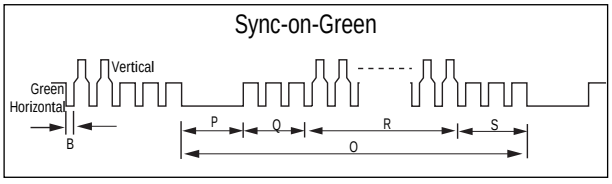
A : Line time total	B : Horizontal sync width	O : Frame time total	P : Vertical sync width
C : Back porch	D : Active time	Q : Back porch	R : Active time
E : Front porch		S : Front porch	

Table 2-2. Timing Chart (19")

Mode / Timing	IBM		VESA							MAC.
	VGA2/70Hz 720 x 400	VGA3/60Hz 640 x 480	640/85 Hz 640 x 480	800/85 Hz 800 x 600	1024/85 Hz 1024 x 768	1024/100 Hz 1024 x 768	1280/75 Hz 1280 x 1024	1280/85 Hz 1280 x 1024	1600/75 Hz 1600 x 1200	1152/75 Hz 1152 x 870
fH (kHz)	31.469	31.469	43.269	53.674	68.677	81.400	79.976	91.146	93.750	68.681
A µsec	31.778	31.778	23.111	18.631	14.561	12.285	12.504	10.971	10.667	14.560
B µsec	3.813	3.813	1.556	1.138	1.016	0.988	1.067	1.016	0.948	1.280
C µsec	1.907	1.907	3.810	2.702	2.201	1.624	1.837	1.422	1.501	1.440
D µsec	25.422	25.422	5.222	14.222	10.836	9.037	9.481	8.127	7.901	11.520
E µsec	0.636	0.636	17.778	0.569	0.508	0.635	0.119	0.406	0.316	0.320
fV (Hz)	70.087	59.940	85.008	85.061	84.997	100.000	75.025	85.024	75.000	75.062
O msec	14.268	16.683	13.333	11.756	11.765	10.000	13.329	11.761	13.333	13.322
P msec	0.064	0.064	0.080	0.056	0.044	0.037	0.038	0.033	0.032	0.044
Q msec	1.080	1.048	0.427	0.503	0.524	0.516	0.475	0.483	0.491	0.568
R msec	12.711	15.253	12.800	11.179	11.183	9.435	12.804	11.235	12.800	12.667
S msec	0.413	0.318	0.027	0.019	0.015	0.012	0.013	0.011	0.011	0.044
Clock Freq. (MHz)	28.322	25.175	36.000	56.250	94.500	113.309	135.000	157.500	202.500	100.000
Polarity H.Sync	Negative	Negative	Negative	Positive	Positive	Negative	Positive	Positive	Positive	Negative
V.Sync	Positive	Negative	Negative	Positive	Positive	Positive	Positive	Positive	Positive	Negative
Remark	Separate	Separate	Separate	Separate	Separate	Separate	Separate	Separate	Separate	SOG







A : Line time total	B : Horizontal sync width	O : Frame time total	P : Vertical sync width
C : Back porch	D : Active time	Q : Back porch	R : Active time
E : Front porch		S : Front porch	

Memo

3 Disassembly and Reassembly

This section of the service manual describes the disassembly and reassembly procedures for the CSE78**T/CSE98**T monitors.

WARNING: This monitor contains electrostatically sensitive devices. Use caution when handling these components.

3-1 Disassembly

Cautions: 1. Disconnect the monitor from the power source before disassembly.
2. Follow these directions carefully; never use metal instruments to pry apart the cabinet.

3-1-1 Before making Disassembly

1. Disconnector signal cable and power cord from the monitor.
2. With a pad beneath it, stand the monitor on its front with the screen facing downward and the base close to you.
3. Make sure nothing will damage the screen.

3-1-2 Cabinet Disassembly

1. To uncover the 2 uppermost screws. Press in the end of each screw cap and pull it away from the cabinet.
2. Remove the 4 screw on the Rear Cover and pull it toward to remove it.

3-1-3 Removing the Stand

1. Pull the tab outward on the Chassis Bottom and pull the Tilt and Swivel Base up to remove it.

3-1-4 Removing the Top Shield

1. Remove the 6 screws on the Top Shield Cover and remove the Shield.

3-1-5 Removing the Bottom Shield

1. Remove the 1 screw on the Bottom Shield Cover.
2. Lift off the Bottom Shield.

3-1-6 Removing the CRT Socket PCB

1. Disconnect connectors GT186 and GT188 on the CRT PCB Assembly.
2. Disconnect the CRT Socket PCB Assembly.

3-1-7 Removing the Video PCB Assembly

1. Remove the 4 screws (both side and Rear part of Main PCB Bracket) on the Video PCB.
2. Disconnect CN104, CN102 and CN103 on the Video PCB Assembly.
3. Lift off the Video PCB Assembly.

3-1-8 Removing the Video PCB Assembly Rear Shield and Video PCB

1. Remove the 8 screws on the PCB Assembly.
2. Using pinch-nosed pliers or long-nosed pliers, pull both side taps of Video PCB Assembly.
3. Lift off the Video PCB Assembly Rear Shield.
4. Remove the 3 screws on the Video PCB Bracket.
5. Lift out the Video PCB and pleat it on a flat, level surface that is protected from static electricity.

3-1-9 Removing the Main PCB Assembly

1. Remove both side screws (4 screws) on the lower edge of the CRT Bracket.
2. Remove Chassis Ground Wire on the side of the left.
3. Disconnect CN203, CN601, H_DY, CN205 and Anode Cap on the Main PCB Assembly.

3-1-10 Removing the Main PCB

1. Remove 7 screws on the main PCB.
2. Pull the Main PCB towards you and carefully lift out the main PCB and placet it on a flat, level surface that is protected from static electricity.

3-1-11 Removing the Bracket

1. Remove the 10 screws on the Front Cabinet.

3-1-12 Removing the Degaussing Coil

1. Using pinch-nosed pliers or long-nosed pliers, carefully push the 4 plastic ties on the Bracket.
2. Lift the Degaussing Coil Assembly from the Bracket.

3-2 Reassembly

Reassembly procedures are in the reverse order of Disassembly procedures.

4 Alignment and Adjustments

This section of the service manual explains how to make permanent adjustments to the monitor. Direction is given for adjustment using the monitor Interface Board Ver. 2.0 and software (SoftJig).

4-1 Adjustment Conditions

Caution: Changes made without the SoftJig are saved only to the user mode settings. As such, the settings are not permanently stored and may be inadvertently deleted by the user.

4-1-1 Before Making Adjustments

4-1-1 (a) ORIENTATION

When servicing, always face the monitor to the east.

4-1-1 (b) MAGNETIC FIELDS

Whenever possible, use magnetic field isolation equipment such as a Helmholtz field to surround the monitor. If a Helmholtz field is not available, frequently degauss the unit under test.

Caution: Other electrical equipment may cause external magnetic fields which may interfere with monitor performance.

Use an external degaussing coil to limit magnetic build up on the monitor. If an external degaussing coil is not available, use the internal degaussing circuit. However, do not use the internal degaussing circuit more than once per 30 minutes.

4-1-1 (c) WARM-UP TIME

The monitor must be on for 30 minutes before starting alignment. Warm-up time is especially critical in color temperature and white balance adjustments.

4-1-1 (d) SIGNAL

Analog, 0.714 Vp-p positive at 75 ohm, internal termination
Sync: Separate/Composite
(TTL level negative/positive)

Sync-on-Green:
Composite sync 0.286 Vp-p negative
(Video 0.714 Vp-p positive)

4-1-1 (e) SCANNING FREQUENCY

Horizontal: 30 kHz to 96 kHz (Automatic)
Vertical: 50 Hz to 160 Hz (Automatic)

Unless otherwise specified, adjust at the 1024 x 768 mode (H: 68 kHz, V: 85 Hz) signals.

Refer to Table 2-1 on pages 2-2 and 2-3.

4-1-1 (f) +B 210 V LINE ADJUSTMENT

Signal: 1024 x 768 mode (68 kHz/85 Hz)
Display image: Full white
Contrast: Maximum
Brightness: Maximum

4-1-1 (g) HIGH VOLTAGE ADJUSTMENT

Signal: 1024 x 768 mode (68 kHz/85 Hz)
Display image: Full white
Contrast: Maximum
Brightness: Maximum
Limit: 27 kV ± 0.5 kV (19″)
26 kV ± 0.5 kV (17″)

Measure the hight voltage level at the anode cap. High voltage should be within the limit as above. If the high voltage needs adjustment use the following procedure.

PROCEDURE

1. Turn the power off and disconnect the AC line cord from the power source.
2. Unsolder and remove VR501 on the Main PCB.
3. Replace VR501 and adjust the high voltage to the specification.
4. Using a soldering iron, melt the adjustment cap on VR501 to prevent any movement.

4-1-1 (h) G2 (SCREEN) VOLTAGE ADJUSTMENT

Signal: 1024 x 768 mode (68 kHz/85 Hz)
Display image: Full white
Contrast: Maximum
Brightness: Maximum

Adjust the Screen VR of the FBT so that the G2 (Screen) Voltage for SDD is 600 V ± 10 V, for Hitachi it is 600 V ± 10 V and for Toshiba it is 700 V ± 10 V.

4-1-1 (i) CENTER RASTER

Adjust VR401 so that the back raster comes to the center when you apply a signal of 91 kHz/85 Hz.

4-1-1 (j) BRIGHTNESS AND CONTRAST

Unless otherwise specified, adjust control volumes:

Brightness: Maximum
Contrast: Maximum

4-1-2 Required Equipment

The following equipment may be necessary for adjustment procedures:

4-1-2 (a) DISPLAY CONTROL ADJUSTMENT

1. Non-metallic (–) screwdriver: 1.5 mm
   Non-metallic (–) screwdriver: 3 mm
2. Philips (+) screwdriver: 1.5 mm
3. Non-metallic hexkey: 2.5 mm
4. Digital Multimeter (DMM), or
   Digital Voltmeter (DVM)
5. Signal generator, or
   Computer with a video board that uses the ET-4000 chipset (strongly recommended if using Samsung DM 200 software) and that displays: 1280 x 1024 @ 85 Hz, or 1600 x 1200 @ 85 Hz (maximum).
6. Personal computer
7. Required software: Softjig.exe from Samsung which includes the cg17p.c data file Samsung DM200, or DisplayMate for Windows from Sonera Technologies
8. Interface Board Ver. 2.0 Code No. BH81-90001K
9. Parallel communications cable (25-pin to 25-pin); Code No. BH81-90001H
10. Signal cable (15-pin to 15-pin cable with additional 3-pin connector); Code No. BH81-90001J
11. 5 V DC adapter, not supplied

Note: SoftJig Ass'y (includes items 8, 9 and 10) Code No. BH81-90001L

4-1-2 (b) COLOR ADJUSTMENTS

1. All equipment listed in 4-1-2 (a), above
2. Color analyzer, or any luminance measurement equipment

4-1-3 Connecting the SoftJig

Connect the monitor to the signal generator and/or PC as illustrated in Figures 4-1 and 4-2.

Note: The signal cable connector which includes the 3-wire cable must connect to the monitor. If you use Setup 2 (PC only, no signal generator) you can only make adjustments to the signal timing available on that computer system. To make corrections to all factory timings requires the use of an additional signal generator.

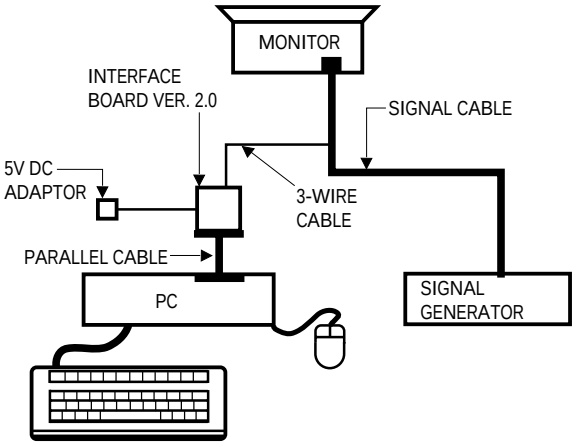


Figure 4-1. Setup 1, With Signal Generator

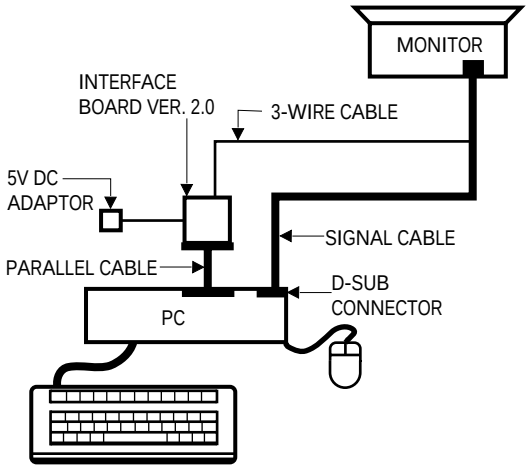


Figure 4-2. Setup 2, Without Signal Generator

4-1-4 After Making Adjustments

After finishing all adjustments, test the monitor in all directions. If, for example, the monitor does not meet adjustment specifications when facing north, reposition the monitor to face east and readjust. This time, try for an adjustment closer to the ideal setting within the tolerance range. Test the unit again in all directions. If the monitor again fails to meet specifications in every direction, contact your Regional After Service Center for possible CRT replacement.

4-2 Display Control Adjustments

4-2-1 Centering

Centering means to position the center point of the display in the middle of the display area. Horizontal size and position and vertical size and position control the centering of the display.

Adjust the horizontal size and vertical size to their optimal settings: 352 mm (H) x 264 mm (V) - 19″, 306 mm (H) x 230 mm (V) - 17″.
1024 x 768 mode (68 kHz/85Hz)

Adjust the horizontal position and vertical position to ≤ 4.0 mm of the center point of the screen.

| A-B | ≤ 4.0 mm. | C-D | ≤ 4.0 mm.

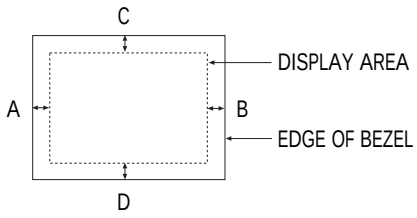


Figure 4-3. Centering

4-2-1 (a) HORIZONTAL SIZE ADJUSTMENT

CONDITIONS

Scanning frequency: 68 kHz/85 Hz
Display image: Crosshatch pattern
Brightness: Cut-off
Contrast: Maximum

Click on the << or >> box next to **H_SIZE** to adjust the horizontal size of the display pattern to 352 mm (19″), 306 mm (17″). (Tolerance: ± 3 mm.)

4-2-1 (b) VERTICAL SIZE ADJUSTMENT

CONDITIONS

Scanning frequency: 68 kHz/85 Hz
Display image: Crosshatch pattern
Brightness: Cut-off
Contrast: Maximum

Click on the << or >> box next to **V_SIZE** to adjust the vertical size of the display pattern to 264 mm (19″), 230 mm (17″). (Tolerance: ± 3 mm.)

4-2-1 (c) HORIZONTAL POSITION ADJUSTMENT

CONDITIONS

Scanning frequency: 68 kHz/85 Hz
Display image: Crosshatch pattern
Brightness: Cut-off
Contrast: Maximum

Click on the << or >> box next to **H_POSI** to center the horizontal image on the raster.

4-2-1 (d) VERTICAL POSITION ADJUSTMENT

CONDITIONS

Scanning frequency: 68 kHz/85 Hz
Display image: Crosshatch pattern
Brightness: Cut-off
Contrast: Maximum

Click on the << or >> box next to **V_POSI** to center the vertical image on the raster.

4-2-2 Linearity

Linearity affects the symmetry of images as they appear on the screen. Unless each row or column of blocks in a crosshatch pattern is of equal size, or within the tolerances shown in Tables 4-1 and 4-2, an image appears distorted, elongated or squashed.

Table 4-1. Factory Preset Modes Linearity

	Standard Modes Linearity	
	Each block (10 %)	Difference between adjacent blocks (4 %)
4 : 3 (19″)	Horizontal: 20.9~23.1 Vertical : 20.9~23.1	Horizontal: Less than 0.88 mm Vertical : Less than 0.88 mm
4 : 3 (17″)	Horizontal: 18.2~20.1 Vertical : 18.2~20.1	Horizontal: Less than 0.77 mm Vertical : Less than 0.77 mm
5 : 4 (19″)	Horizontal: 19.60~21.65 Vertical : 20.9~23.1	Horizontal: Less than 0.82 mm Vertical : Less than 0.88 mm

Table 4-2. Other Modes Linearity: VGA, SVGA, XGA, MAC, etc.

	Supported Timing Mode	
	Each block (14 %)	Difference between adjacent blocks (5 %)
4 : 3 (19″)	Horizontal: 20.5~23.5 Vertical : 20.5~23.5	Horizontal: Less than 1.10 mm Vertical : Less than 1.10 mm
4 : 3 (17″)	Horizontal: 17.8~20.5 Vertical : 17.8~20.5	Horizontal: Less than 0.96 mm Vertical : Less than 0.96 mm
5 : 4 (19″)	Horizontal: 19.18~22.07 Vertical : 20.5~23.5	Horizontal: Less than 1.03 mm Vertical : Less than 1.10 mm

4-2-2 (a) HORIZONTAL LINEARITY ADJUSTMENT

CONDITIONS

Scanning frequency: 68 kHz/85 Hz
Display image: Crosshatch pattern
Brightness: Cut-off
Contrast: Maximum

To adjust the Horizontal Linearity, refer to Tables 4-1 and 4-2 for the tolerance range.

Click on the << or >> box next to **H_LIN** to optimize the image.

4-2-2 (b) VERTICAL LINEARITY ADJUSTMENT

CONDITIONS

Scanning frequency:	68 kHz/85 Hz
Display image:	Crosshatch pattern
Brightness:	Cut-off
Contrast:	Maximum

To adjust the Vertical Linearity, refer to Tables 4-1 and 4-2 for the tolerance range.

Click on the << or >> box next to **V_LIN** to optimize the image.

4-2-3 Trapezoid Adjustment

CONDITIONS

Scanning frequency:	68 kHz/85 Hz
Display image:	Crosshatch pattern
Brightness:	Cut-off
Contrast:	Maximum

Click on the << or >> box next to **TRAPE** to make the image area rectangular.

| A - B | < 5 mm

Figure 4-4. Trapezoid

4-2-4 Pinbalance Adjustment

CONDITIONS

Scanning frequency:	68 kHz/85 Hz
Display image:	Crosshatch pattern
Brightness:	Cut-off
Contrast:	Maximum

| D1 |, | D2 | ≤ 2.0 mm

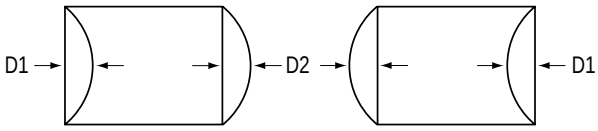


Figure 4-5. Pinbalance

Click on the << or >> box next to **PIN_BAL** to optimize the image.

4-2-5 Parallelogram Adjustment

CONDITIONS

Scanning Frequency:	68 kHz/85 Hz
Display image:	Crosshatch pattern
Brightness:	Cut-off
Contrast:	Maximum

Click on the << or >> box next to **PARALL** to make the image are rectangular.

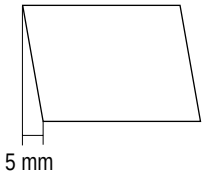


Figure 4-6. Parallelogram

4-2-6 Side Pincushion Adjustment

CONDITIONS

Scanning frequency:	68 kHz/85 Hz
Display image:	Crosshatch pattern
Brightness:	Cut-off
Contrast:	Maximum

Click on the << or >> box next to **BARREL** to straighten the sides of the image area.

| C1 |, | C2 | ≤ 2.0 mm, | D1 |, | D2 | ≤ 2.0 mm.

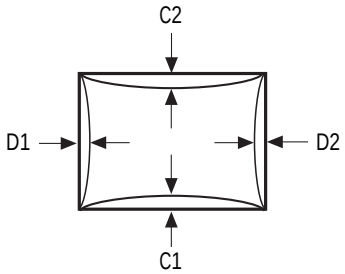


Figure 4-7. Pincushion

4-2-7 Tilt Adjustment

CONDITIONS

Scanning Frequency:	68 kHz/85 Hz
Display image:	Crosshatch pattern
Brightness:	Cut-off
Contrast:	Maximum

Click on the << or >> box next to **ROTATE** to correct the tilt of the display.

4-2-8 Degauss

No adjustments are available for the degaussing circuit. The degaussing circuit can effectively function only once per 30 minutes.

4-2-9 To Delete the User Mode Data

To delete the adjustment data from the user modes, click **USER DELETE.**

4-2-10 Save the Data

To save the adjustment data for a mode, press **FACTORY SAVE**.

4-3 Color Adjustments

4-3-1 Color Coordinates (Temperature)

Color temperature is a measurement of the radiant energy transmitted by a color. For computer monitors, the color temperature refers to the radiant energy transmitted by white. Color coordinates are the X and Y coordinates on the chromaticity diagram of wavelengths for the visible spectrum.

CONDITIONS

Measurement instrument:	Color analyzer
Scanning frequency:	68 kHz/85 Hz
Display Size :	352 (H) x 264 (V) - 19″ 306 (H) x 230 (V) - 17″
Display image:	White flat field at center of display area
Brightness:	Cut-off
Contrast:	Maximum

PROCEDURE

Use the directions in sections 4-3-2 through 4-3-4 to adjust the color coordinates for:
9300K to x = 0.283 ± 0.02, y = 0.298 ± 0.02
6500K to x = 0.313 ± 0.02, y = 0.329 ± 0.02
5000K to x = 0.346 ± 0.02, y = 0.359 ± 0.02

4-3-2 Color Adjustments for 9300K

4-3-2 (a) BACK RASTER COLOR ADJUSTMENT

CONDITIONS

Scanning frequency:	68 kHz/85 Hz
Display image:	Back raster pattern
Brightness:	Cut-off
Contrast:	Maximum

1. Select **COLOR CHANNEL 1** to control the color for 9300K.
2. Adjust the luminance of the back raster to between 0.3 to 1ft-L using the **G_CUT** controls.
3. Click on the << or >> box next to **B_CUT** to set the "y" coordinate to 0.298 ± 0.02.
4. Click on the << or >> box next to **R_CUT** to set the "x" coordinate to 0.283 ± 0.02.

   Note: If the above adjustments cannot be done to each coordinate, click on the << or >> box next to **G_CUT** to decrease or increase the green cutoff (bias) and repeat procedures 2 and 3.

4-3-2 (b) G-GAIN ADJUSTMENT

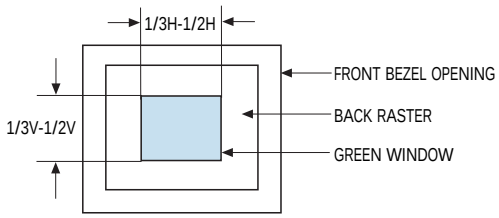


Figure 4-8. Green Box Pattern

CONDITIONS

Scanning frequency:	68 kHz/85 Hz
Display image:	Green box pattern
Brightness:	Cut-off
Contrast:	Maximum

1. Click on the << or >> box next to **G_GAIN** to adjust the brightness of the Green Gain to 25 ± 1 ft-L (19″), 30 ± 1 ft-L (17″).

   Note: If you can't increase the Green Gain to the appropriate value, click on the >> box next to increase the **ABL** point.

4-3-2 (c) WHITE BALANCE ADJUSTMENT

CONDITIONS

Scanning frequency:	68 kHz/85 Hz
Display image:	Full white pattern
Brightness:	Cut-off
Contrast:	Maximum

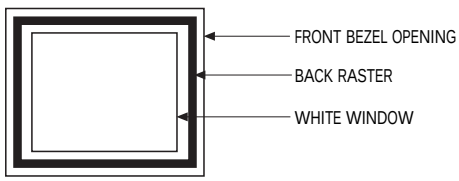


Figure 4-9. Full White Pattern

1. Click on the << or >> boxes next to **R_GAIN** and **B_GAIN** to make the video white. (For 9300K color adjustment: x = 0.283 ± 0.02, y = 0.298 ± 0.02.)

   Note: Do not touch the **G_GAIN** controls.
2. Check the ABL. If it is not within the specifications (30 ± 1 ft-L), use the ABL controls to adjust it.
3. Select **COLOR FACTORY SAVE** to save the data.

4-3-2 (d) WHITE BALANCE ADJUSTMENT VERIFICATION

CONDITIONS

Scanning frequency:	68 kHz/85 Hz
Display image:	Back raster pattern
X-Y Coordinates:	x = 0.283 ± 0.02, y = 0.298 ± 0.02
Raster Luminance	0.3 ~ 1ft-L
ABL Luminance	30 ± 1 ft-L
Brightness:	Cut-off
Contrast:	Maximum

1. Check whether the color coordinates of the back raster satisfy the above spec.

   If they do not, return to 4-3-2 (a) and readjust all settings.
2. Display a full white pattern.

Note: Do not touch the **G_GAIN** controls.

3. Adjust the Contrast Control on the monitor so that the luminance of the video is about 5 ft-L.
4. Check whether the white coordinates of the video meet the above coordinates spec.
5. Adjust the Contrast Control again so that the luminance of the video is about 20 ft-L.
6. Check whether the white coordinates of the video satisfies the above spec.

   If they do not, return to 4-3-2 (a) and readjust all settings.

4-3-3 Color Adjustments for 6500K

4-3-3 (a) BACK RASTER COLOR ADJUSTMENT

CONDITIONS

Scanning frequency:	68 kHz/85 Hz
Display image:	Back raster pattern
Brightness:	Cut-off
Contrast:	Maximum

1. Select **COLOR CHANNEL 2** to control the color for 6500K.
2. Adjust the luminance of the back raster to between 0.3 to 1.0 ft-L using the **G_CUT** controls.
3. Click on the << or >> boxes next to **R_CUT** and **B_CUT** to adjust the R-Bias to x = 0.313 ± 0.02 and the B-Bias to y = 0.329 ± 0.02.

4-3-3 (b) G-GAIN ADJUSTMENT

This procedure is the same as that for 9300K, refer to the procedure on page 4-5.

4-3-3 (c) WHITE BALANCE ADJUSTMENT

CONDITIONS

Scanning frequency:	68 kHz/85 Hz
Display image:	Full white pattern
Brightness:	Cut-off
Contrast:	Maximum

1. Click on the << or >> boxes next to **R_GAIN** and **B_GAIN** to make the video white. (For 6500K color adjustment: x = 0.313 ± 0.02, y = 0.329 ± 0.02.)
2. Refer to the procedure for 9300K, section 4-3-2 (c) steps 2 and 3.

4-3-3 (d) WHITE BALANCE ADJUSTMENT VERIFICATION

Refer to the procedure for 9300K, section 4-3-2 (d).

4-3-4 Color Adjustments for 5000K

4-3-4 (a) BACK RASTER COLOR ADJUSTMENT

CONDITIONS

Scanning frequency:	68 kHz/85 Hz
Display image:	Back raster pattern
Brightness:	Cut-off
Contrast:	Maximum

1. Select **COLOR CHANNEL 3** to control the color for 5000K.
2. Adjust the luminance of the back raster to between 0.3 to 1.0 ft-L using the **G_CUT** controls.
3. Click on the << or >> boxes next to **R_CUT** and **B_CUT** to adjust the R-Bias to x = 0.346 ± 0.02 and the B-Bias to y = 0.359 ± 0.02.

4-3-4 (b) G-GAIN ADJUSTMENT

This procedure is the same as that for 9300K, refer to the procedure on page 4-5.

Adjust the brightness of the **G_GAIN** less 5 ft-L than brightness of procedure for 9300K.

4-3-4 (c) WHITE BALANCE ADJUSTMENT

CONDITIONS

Scanning frequency:	68 kHz/85 Hz
Display image:	Full white pattern
Brightness:	Cut-off
Contrast:	Maximum

1. Click on the << or >> boxes next to **R_GAIN** and **B_GAIN** to make the video white. (For 5000K color adjustment: x = 0.346 ± 0.02, y = 0.359 ± 0.02.)
2. Refer to the procedure for 9300K, section 4-3-2 (c) steps 2 and 3.

4-3-4 (d) WHITE BALANCE ADJUSTMENT VERIFICATION

Refer to the procedure for 9300K, section 4-3-2 (d).

4-3-5 Luminance Uniformity Check

Luminance is considered uniform only if the ratio of lowest to highest brightness areas on the screen is not less than 7.5:10.

CONDITIONS

Scanning frequency:	68 kHz/85 Hz (1024 x 768)
Display image:	White flat field
Display size	352 (H) x 264 (V) - 19″ 306 (H) x 230 (V) - 17″
Brightness:	Cut off point
Contrast:	Maximum

PROCEDURE

Measure luminance at nine points on the display screen (see figure below).

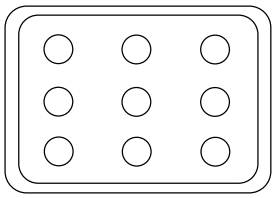


Figure 4-10 Luminance Uniformity Check Locations

4-3-6 Focus Adjustment

CONDITIONS

Scanning frequency:	68 kHz/85 Hz
Display image:	“H” character pattern
Brightness:	Cut off point
Contrast:	Maximum

PROCEDURE

1. Adjust the Focus VR on the FBT to display the sharpest image possible.
2. Use Locktite to seal the Focus VR in position.

4-3-7 Color Purity Adjustment

Color purity is the absence of undesired color. Conspicuous mislanding (unexpected color in a uniform field) within the display area shall not be visible at a distance of 50 cm from the CRT surface.

CONDITIONS

Orientation:	Monitor facing east
Scanning frequency:	68 kHz/85 Hz
Display image:	White flat field
Luminance:	Cut off point at the center of the display area

Note: Color purity adjustments should only be attempted by qualified personnel.

PROCEDURE

For trained and experienced service technicians only.

Use the following procedure to correct minor color purity problems:

1. Make sure the display is not affected by external magnetic fields.
2. Very carefully break the glue seal between the 2-pole purity convergence magnets (PCM), the band and the spacer.
3. Make sure the spacing between the PCM assembly and the CRT stem is 29 mm ± 1 mm.
4. Display a green pattern over the entire display area.
5. Adjust the purity magnet rings on the PCM assembly to display a pure green pattern. (Optimum setting: x = 0.295 ± 0.015, y = 0.594 ± 0.015)
6. Repeat steps 4 and 5 using a red pattern and then again, using a blue pattern.

Table 4-3. Color Purity Tolerances

Red:	x = 0.640 ± 0.015	y = 0.323 ± 0.015
Green:	x = 0.295 ± 0.015	y = 0.594 ± 0.015
Blue:	x = 0.142 ± 0.015	y = 0.066 ± 0.015

(For 9300K color adjustment: x = 0.283 ± 0.02, y = 0.298 ± 0.02)

7. When you have the PCMs properly adjusted, carefully glue them together to prevent their movement during shipping.

Memo

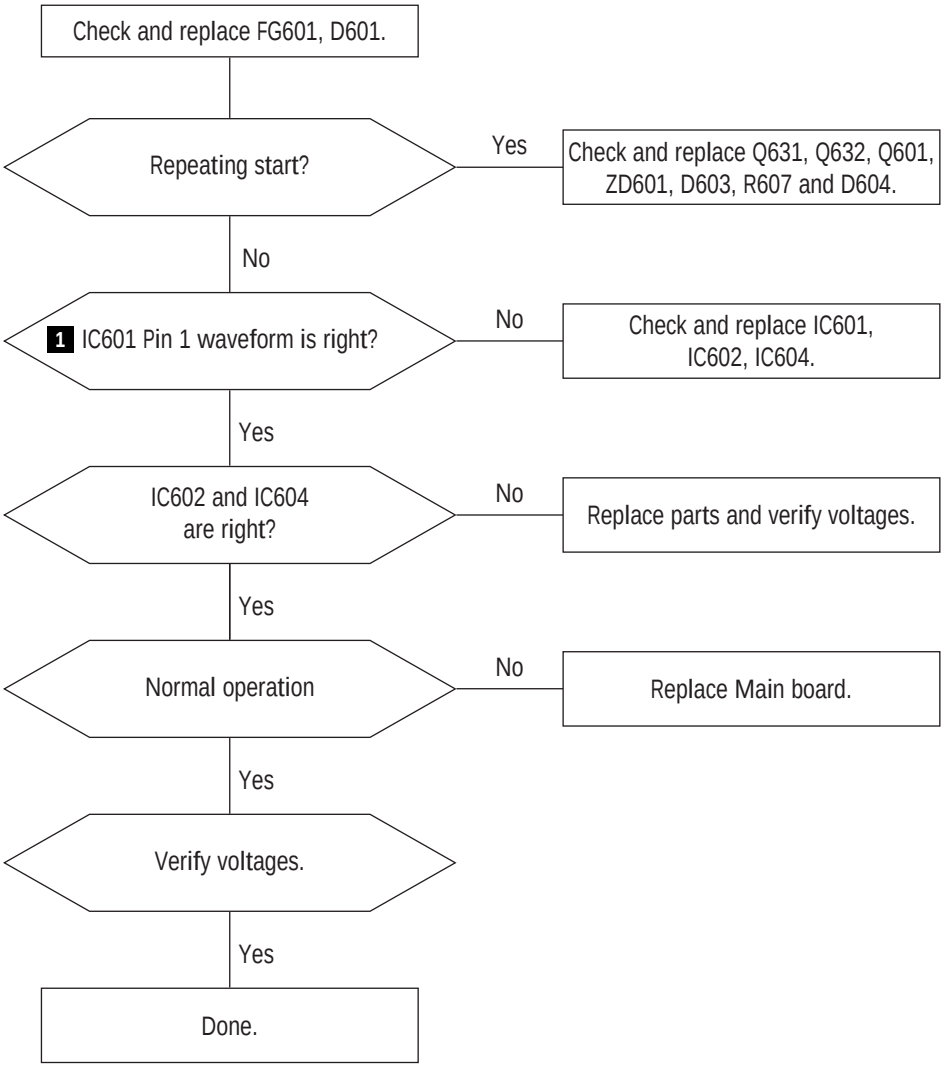
5 Troubleshooting

5-1 Parts Level Troubleshooting

Notes: 1. If a picture does not appear, fully rotate the brightness and contrast controls clockwise and reinspect.

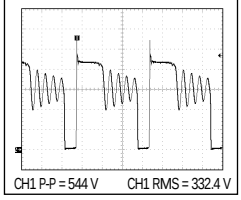
2. Check the following circuits.
   - No raster appears: Power circuit, Horizontal output circuit, H/V control circuit, and H/V output circuit.
   - High voltage develops but no raster appears: Video output circuits.
   - High voltage does not develop: Horizontal output circuits.

5-1-1 No Power Supply

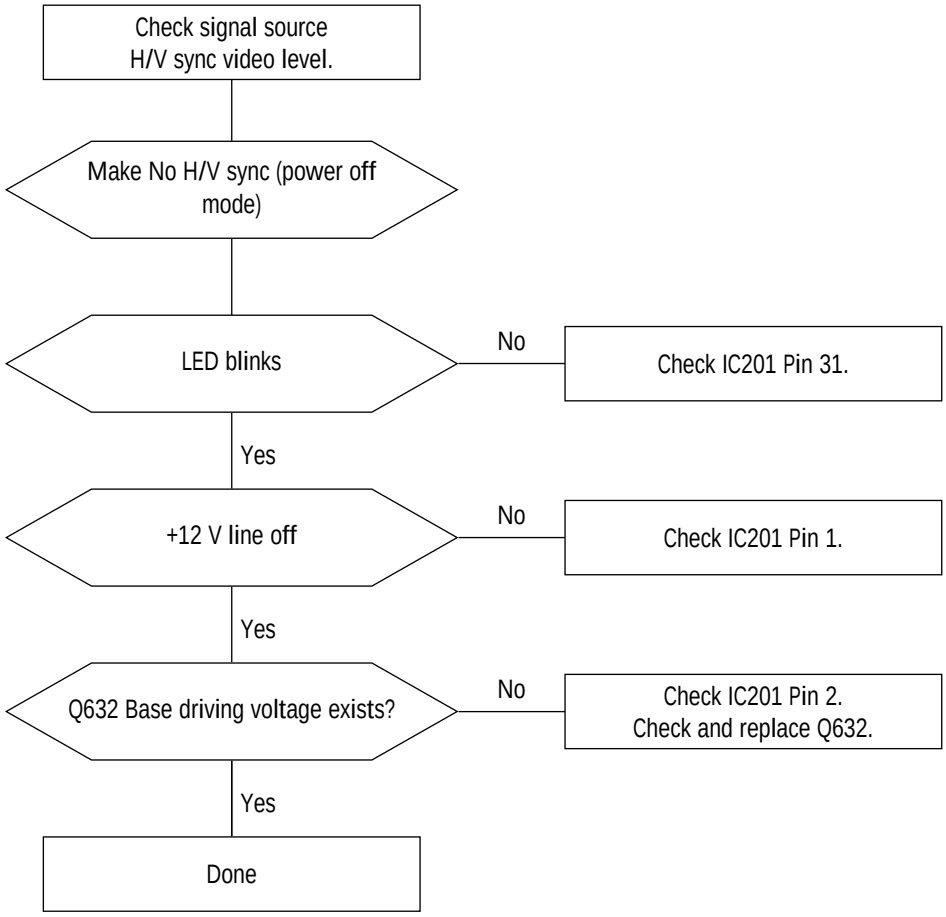


WAVEFORMS

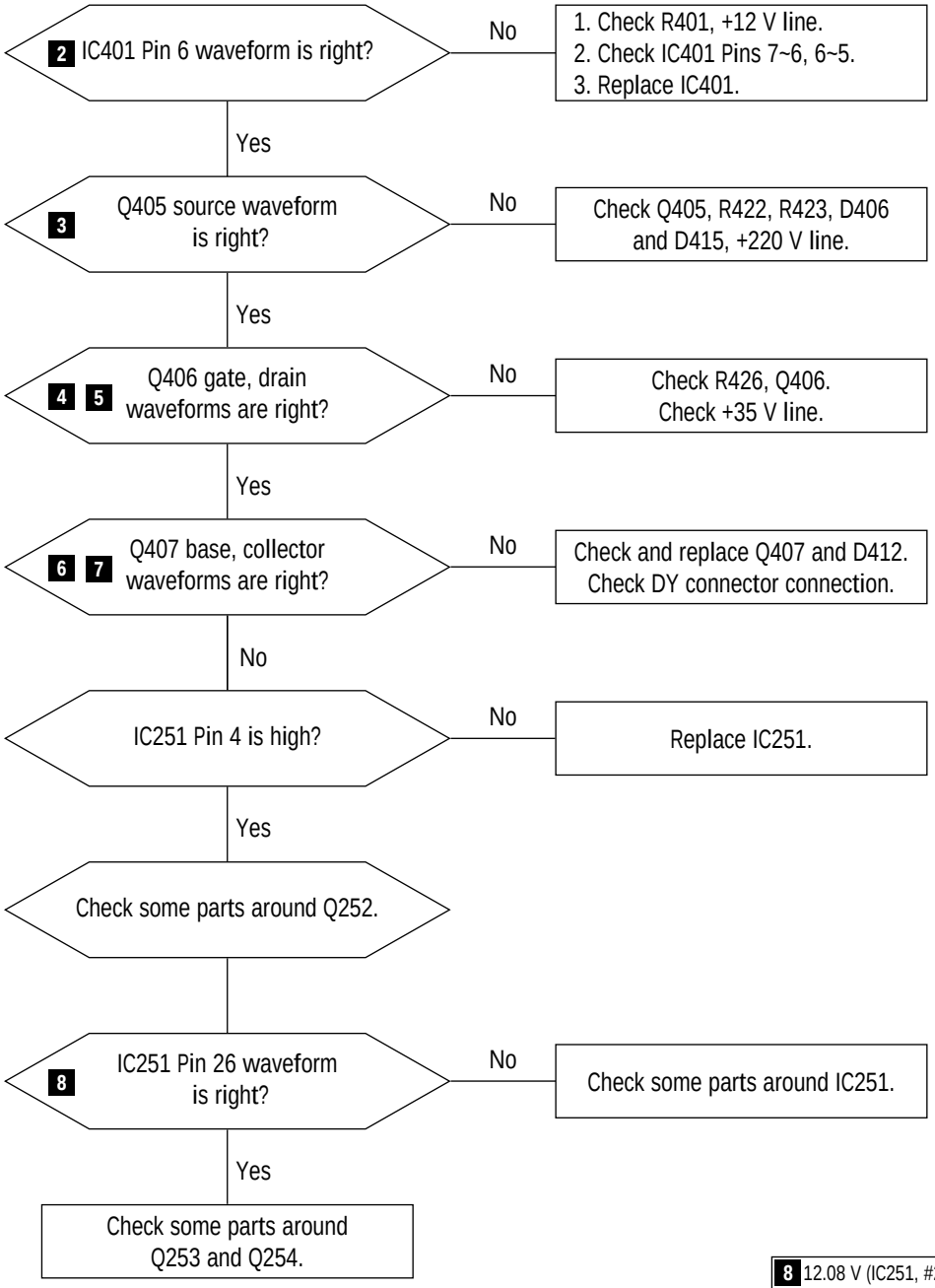
1 544 V (IC601, #1)



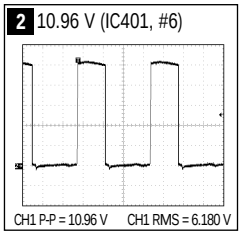
5-1-2 DPMS Failure

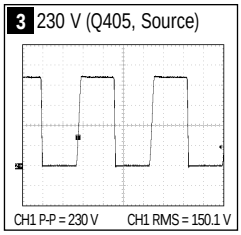


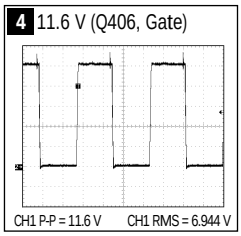
5-1-3 H_Deflection Failure

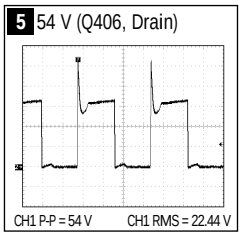


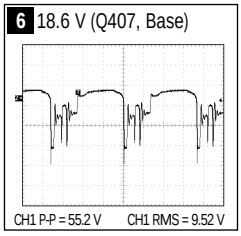
WAVEFORMS

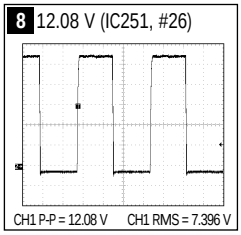


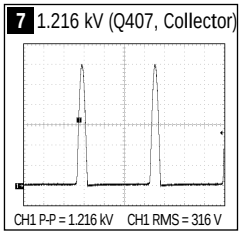




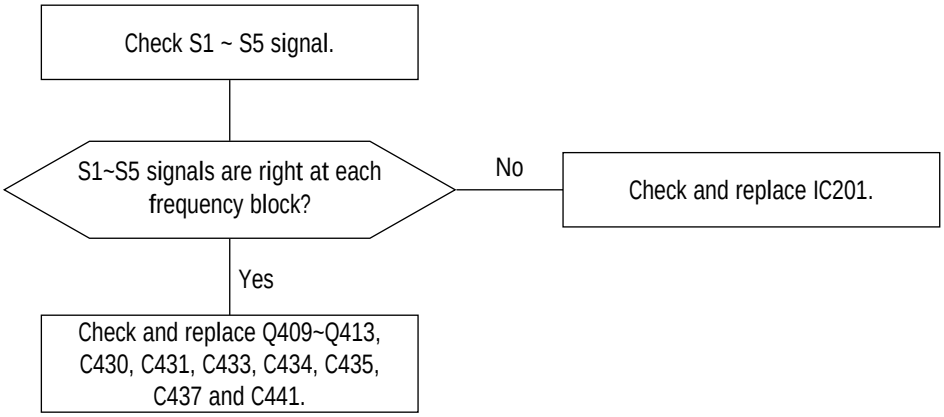




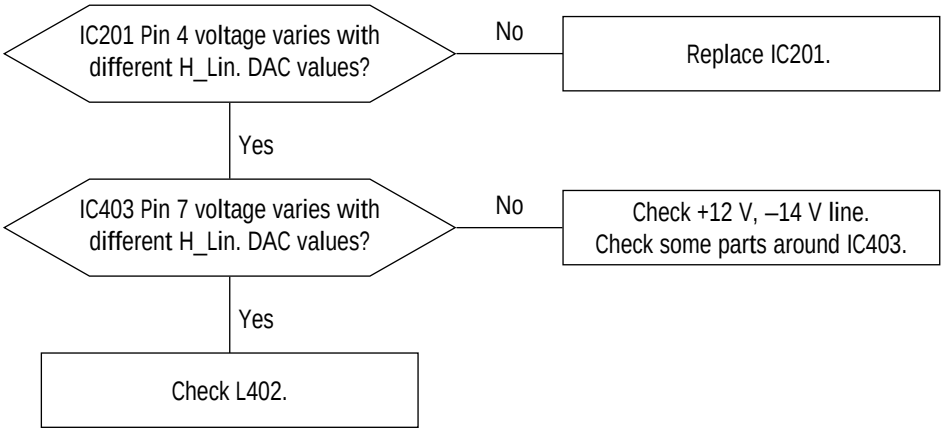




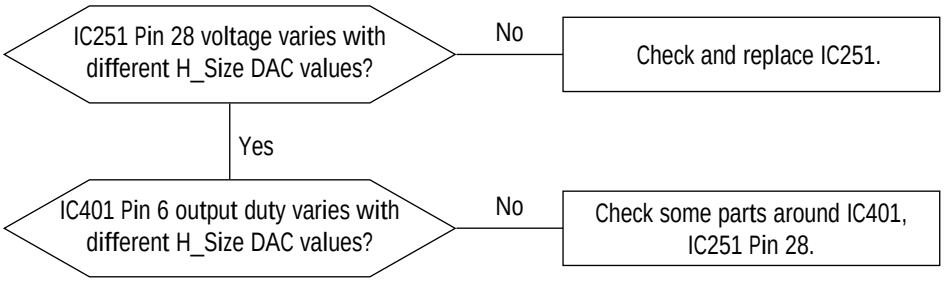
5-1-4 S Correction Failure


Check S1 ~ S5 signal.
S1~S5 signals are right at each frequency block?
No
Check and replace IC201.
Yes
Check and replace Q409~Q413, C430, C431, C433, C434, C435, C437 and C441.

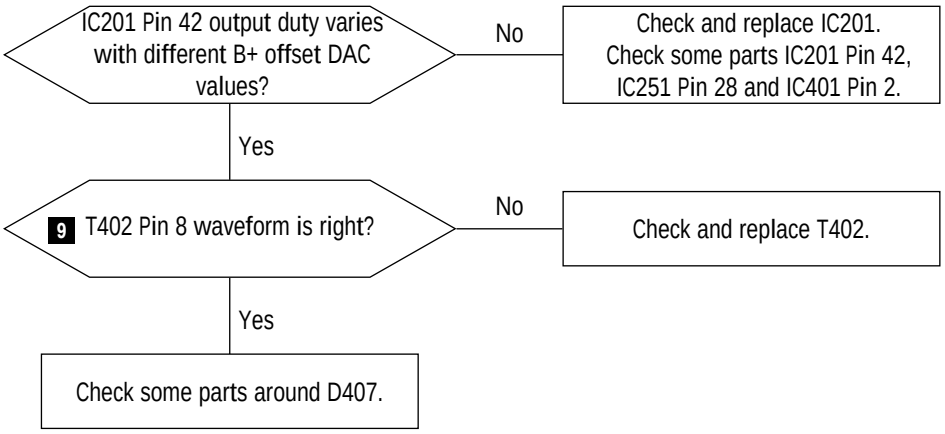
5-1-5 H_Lin. Failure



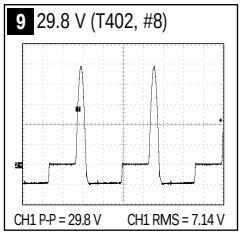
7-1-6 Invariable H_Size


IC251 Pin 28 voltage varies with different H_Size DAC values?
No
Check and replace IC251.
Yes
IC401 Pin 6 output duty varies with different H_Size DAC values?
No
Check some parts around IC401, IC251 Pin 28.

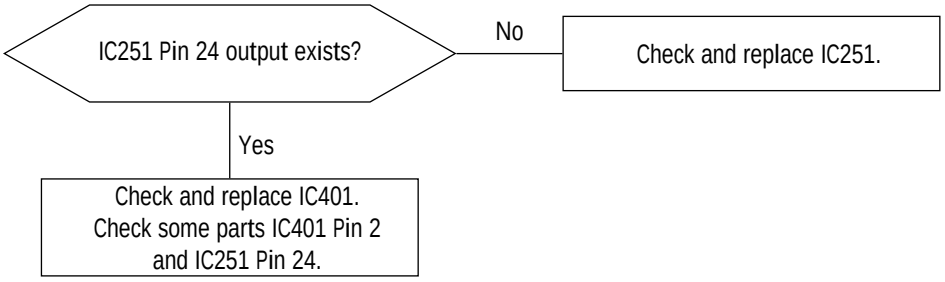
5-1-7 Abnormal H_Size


IC201 Pin 42 output duty varies with different B+ offset DAC values?
No
Check and replace IC201. Check some parts IC201 Pin 42, IC251 Pin 28 and IC401 Pin 2.
Yes
9 T402 Pin 8 waveform is right?
No
Check and replace T402.
Yes
Check some parts around D407.

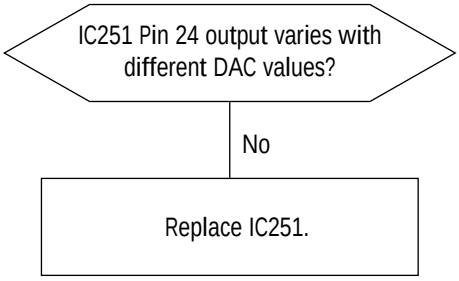
WAVEFORMS



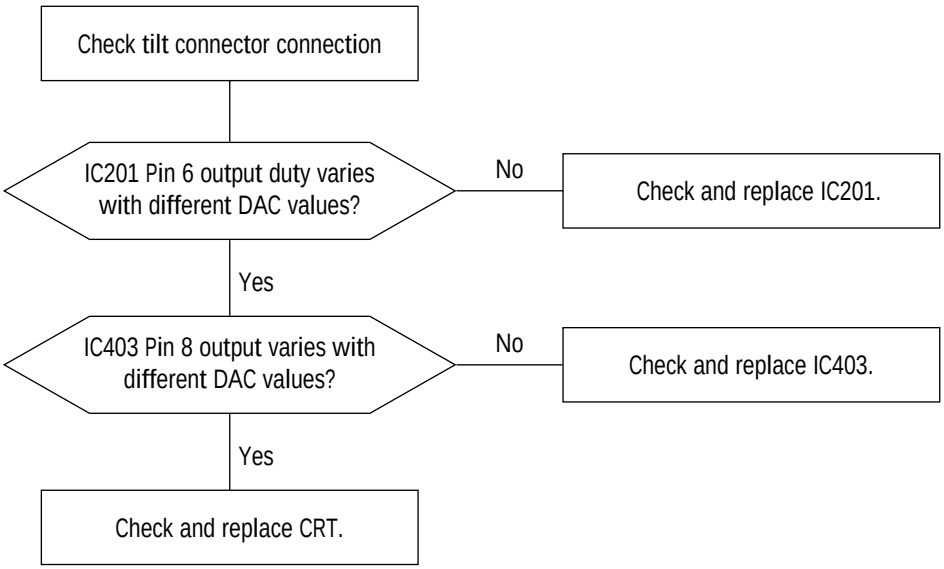
5-1-8 Side Pin or Trap Failure


IC251 Pin 24 output exists?
No
Check and replace IC251.
Yes
Check and replace IC401. Check some parts IC401 Pin 2 and IC251 Pin 24.

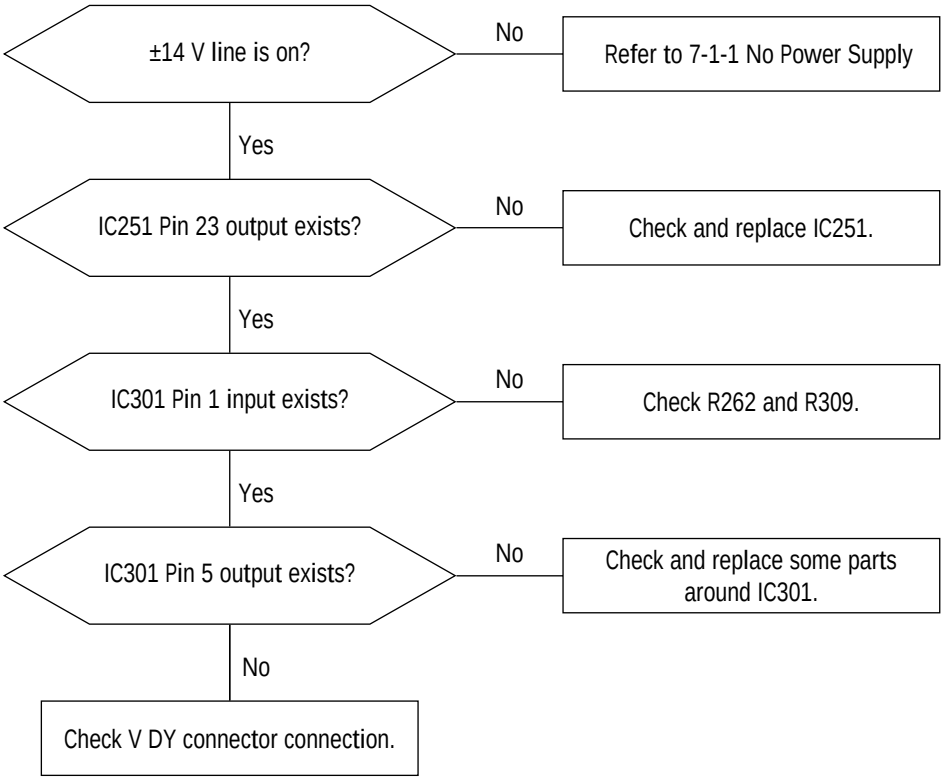
5-1-9 Para. or Pin Balance Failure



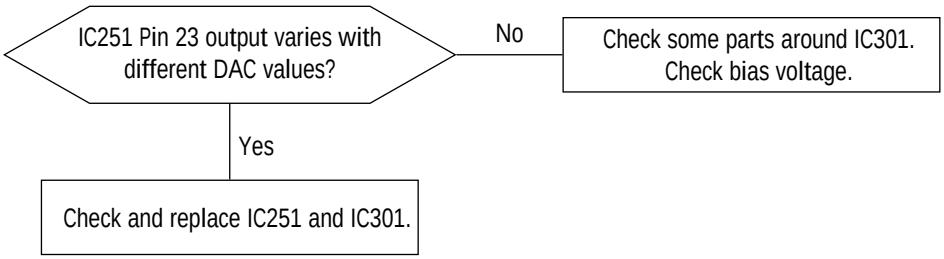
5-1-10 Tilt Failure



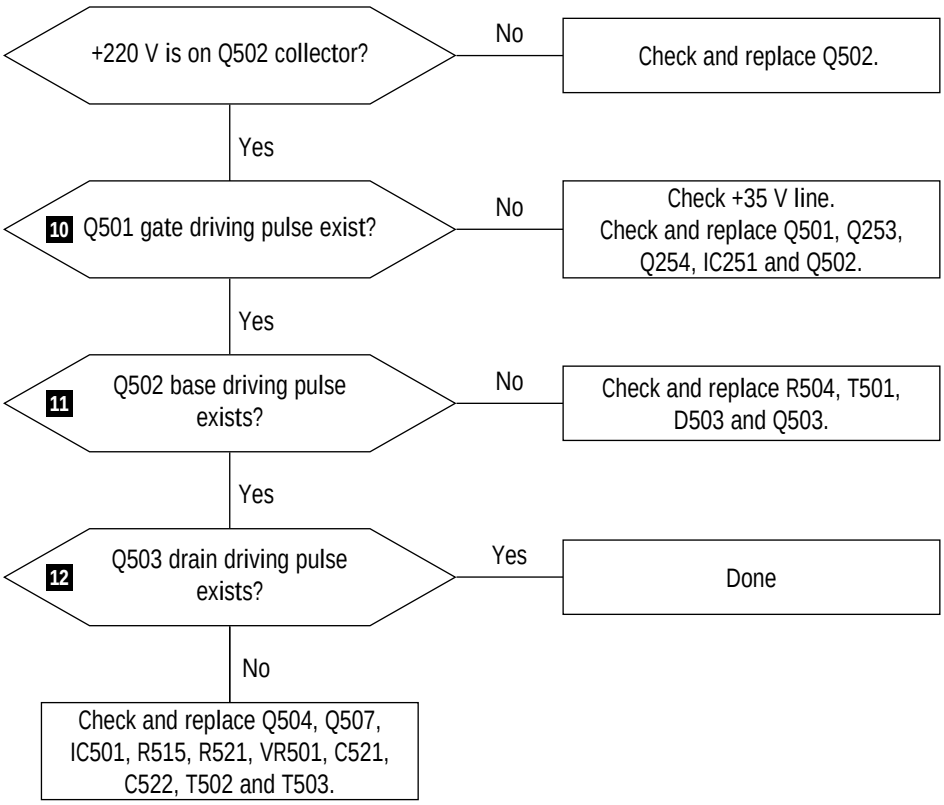
5-1-11 V Deflection Failure



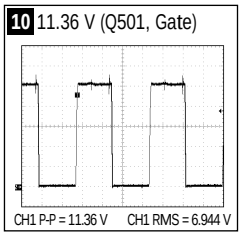
5-1-12 V Size or Pos. Variation Failure

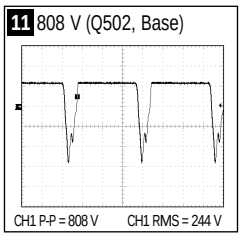

IC251 Pin 23 output varies with different DAC values?
No
Check some parts around IC301. Check bias voltage.
Yes
Check and replace IC251 and IC301.

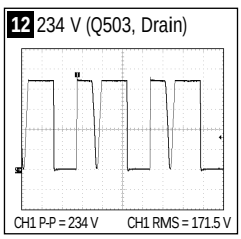
5-1-13 High Voltage Failure


+220 V is on Q502 collector?
No
Check and replace Q502.
Yes
10 Q501 gate driving pulse exist?
No
Check +35 V line. Check and replace Q501, Q253, Q254, IC251 and Q502.
Yes
11 Q502 base driving pulse exists?
No
Check and replace R504, T501, D503 and Q503.
Yes
12 Q503 drain driving pulse exists?
Yes
Done
No
Check and replace Q504, Q507, IC501, R515, R521, VR501, C521, C522, T502 and T503.

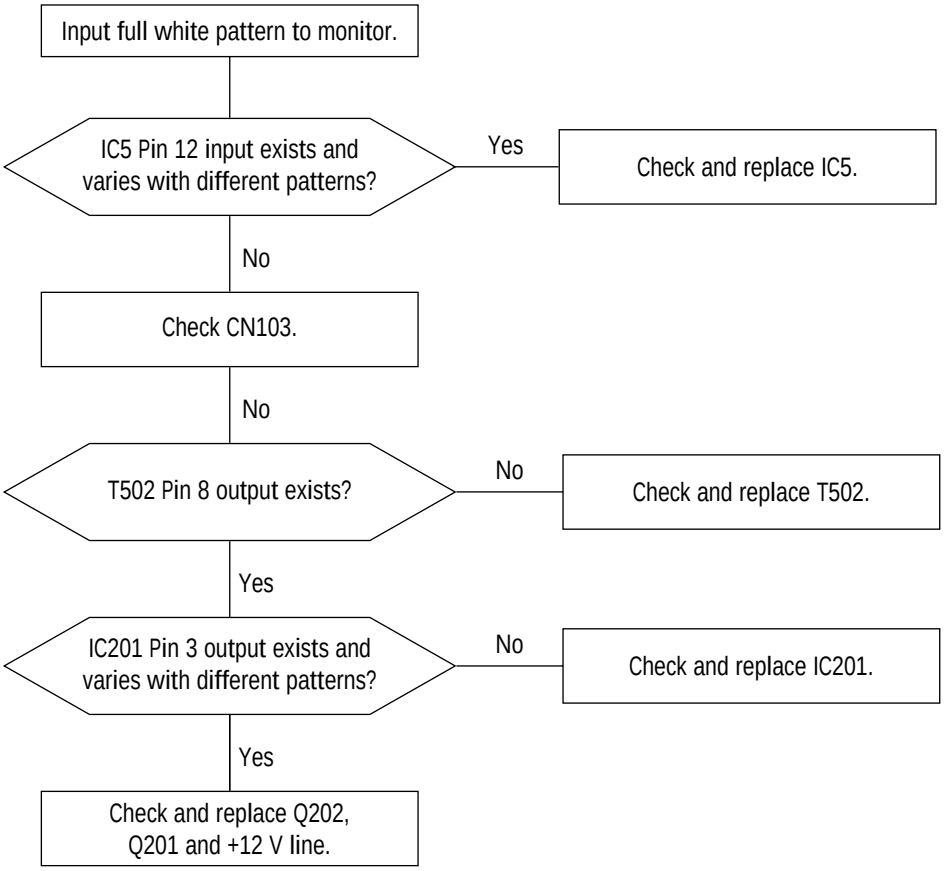
WAVEFORMS



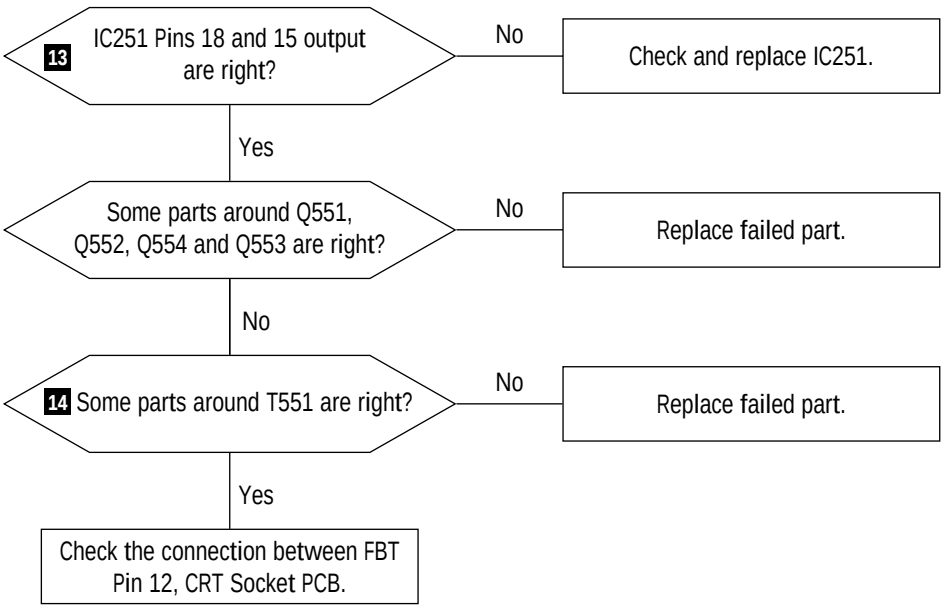




5-1-14 ABL Failure

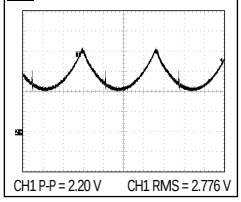


5-1-15 Dynamic Focus Failure

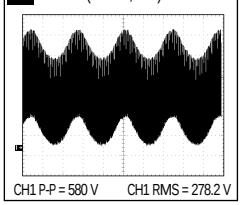

13 IC251 Pins 18 and 15 output are right?
No
Check and replace IC251.
Yes
Some parts around Q551, Q552, Q554 and Q553 are right?
No
Replace failed part.
No
14 Some parts around T551 are right?
No
Replace failed part.
Yes
Check the connection between FBT Pin 12, CRT Socket PCB.

WAVEFORMS

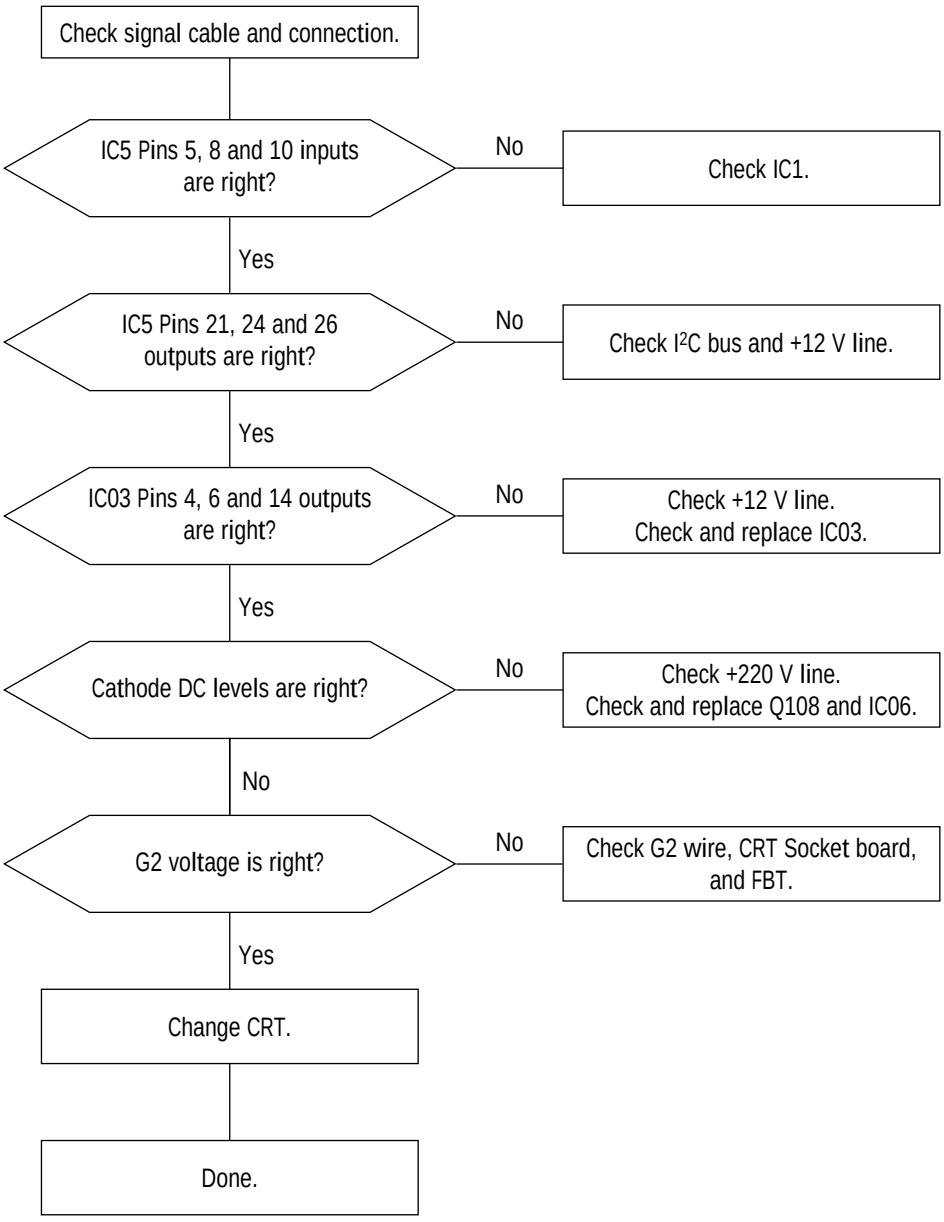
13 2.20 V (IC251, #15)



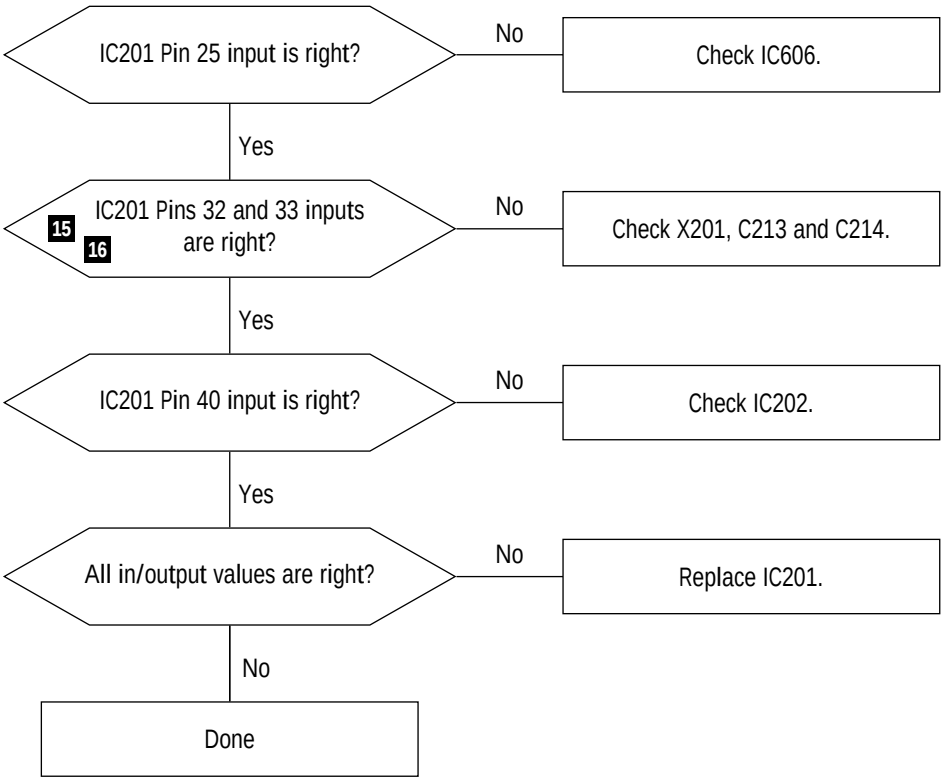
14 580 V (T551, #1)



5-1-16 No Video

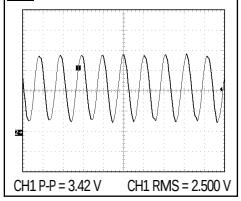


5-1-17 Micom Failure

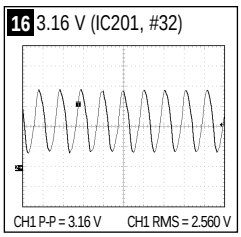


WAVEFORMS

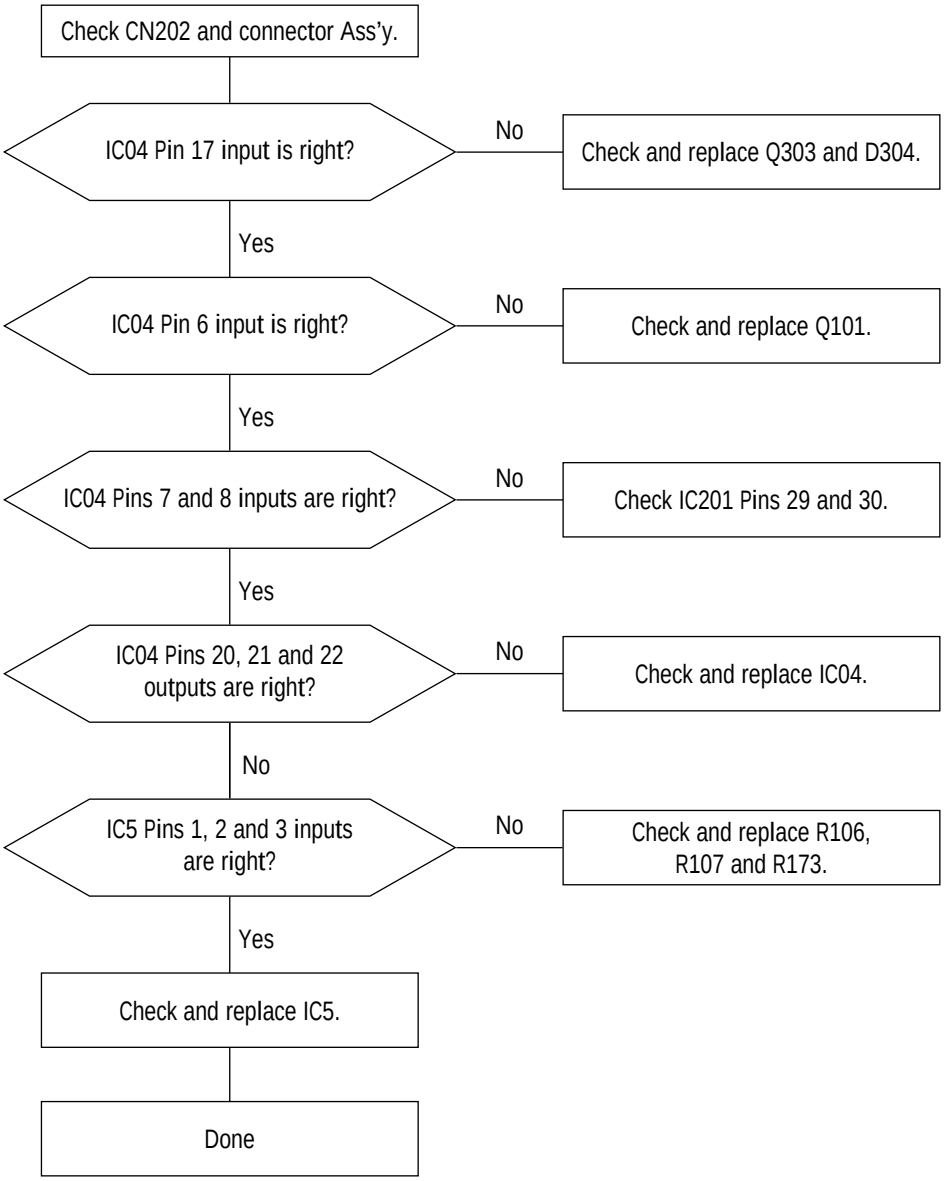
15 3.42 V (IC201, #33)



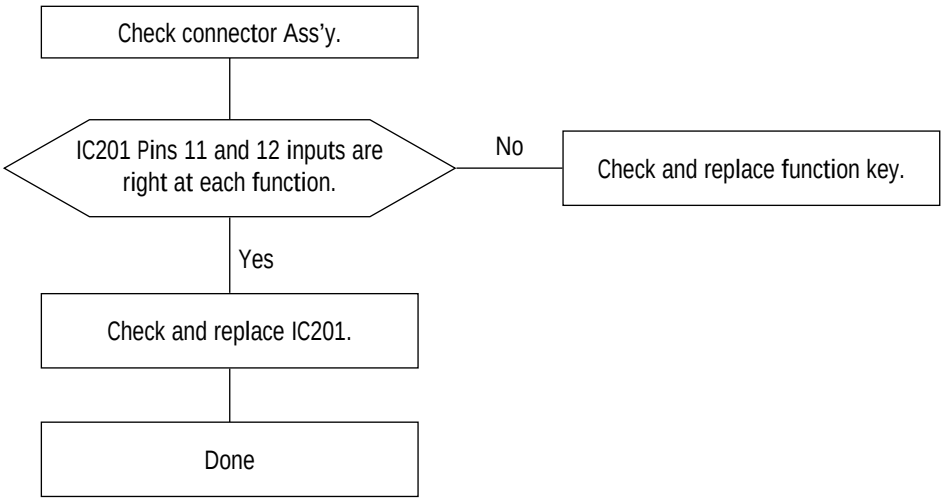
16 3.16 V (IC201, #32)



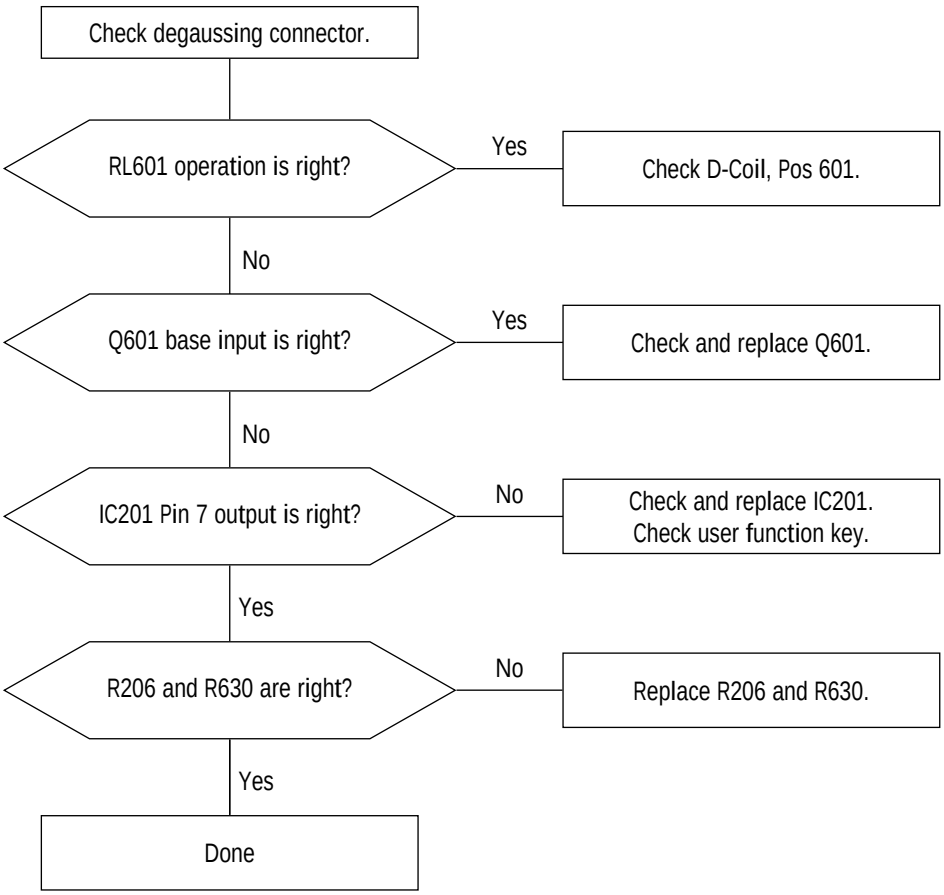
5-1-18 OSD Failure



5-1-19 User Control Failure

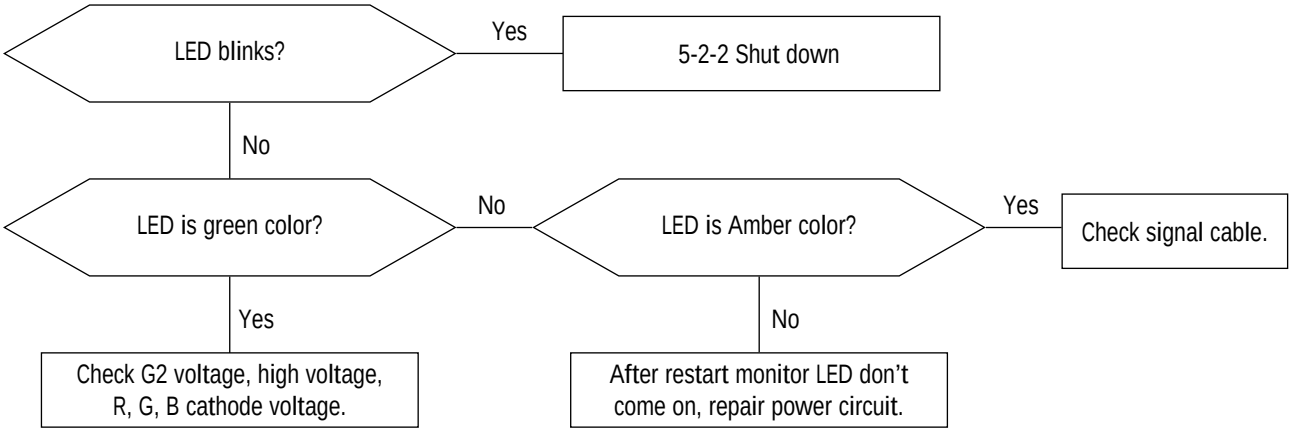


5-1-20 Degaussing Failure

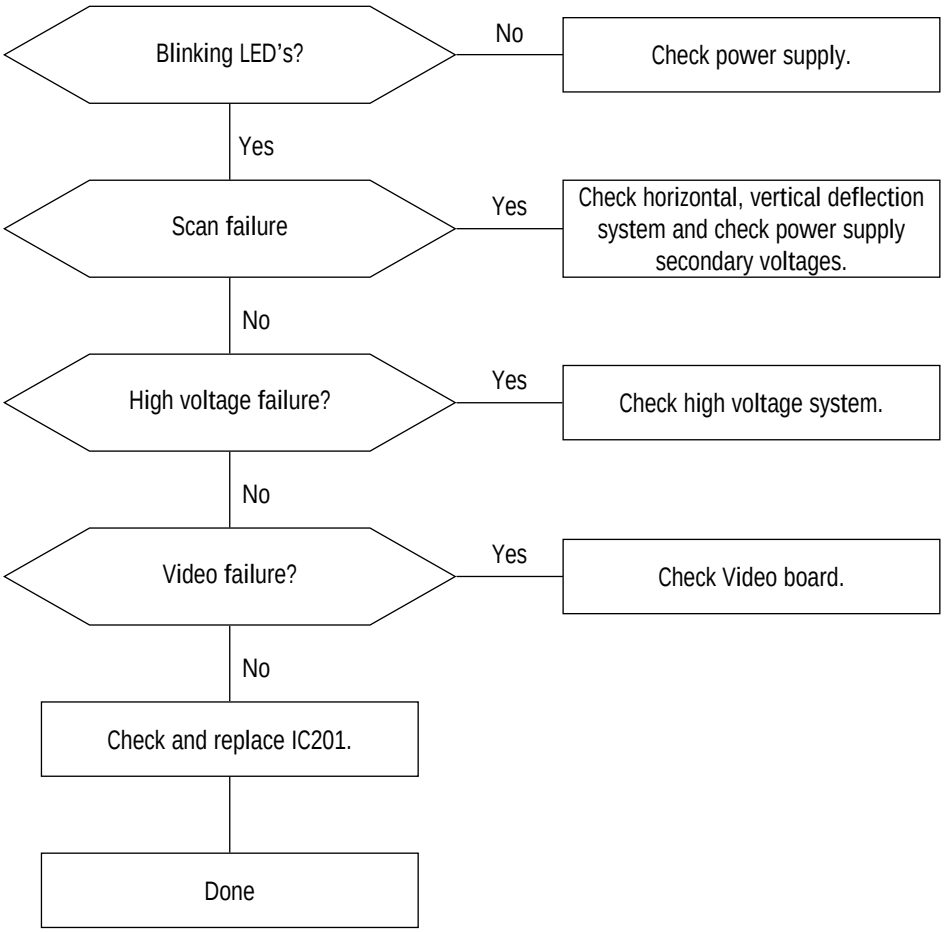


5-2 General Troubleshooting

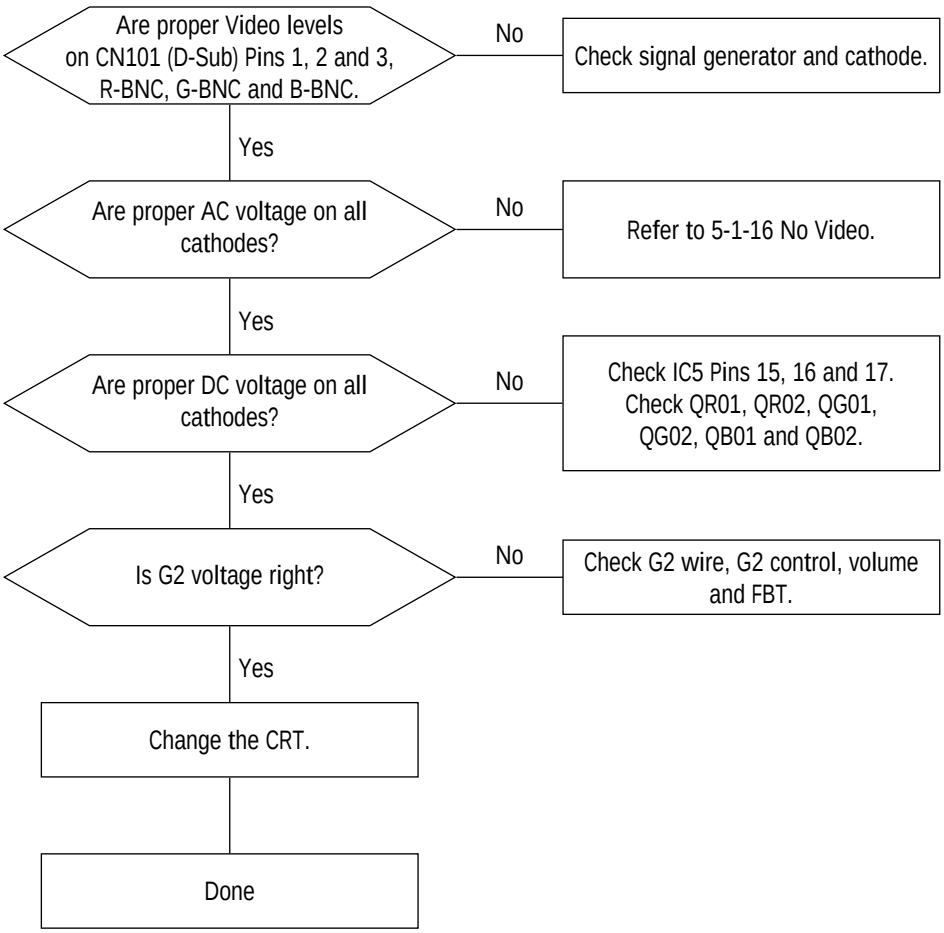
5-2-1 No Picture



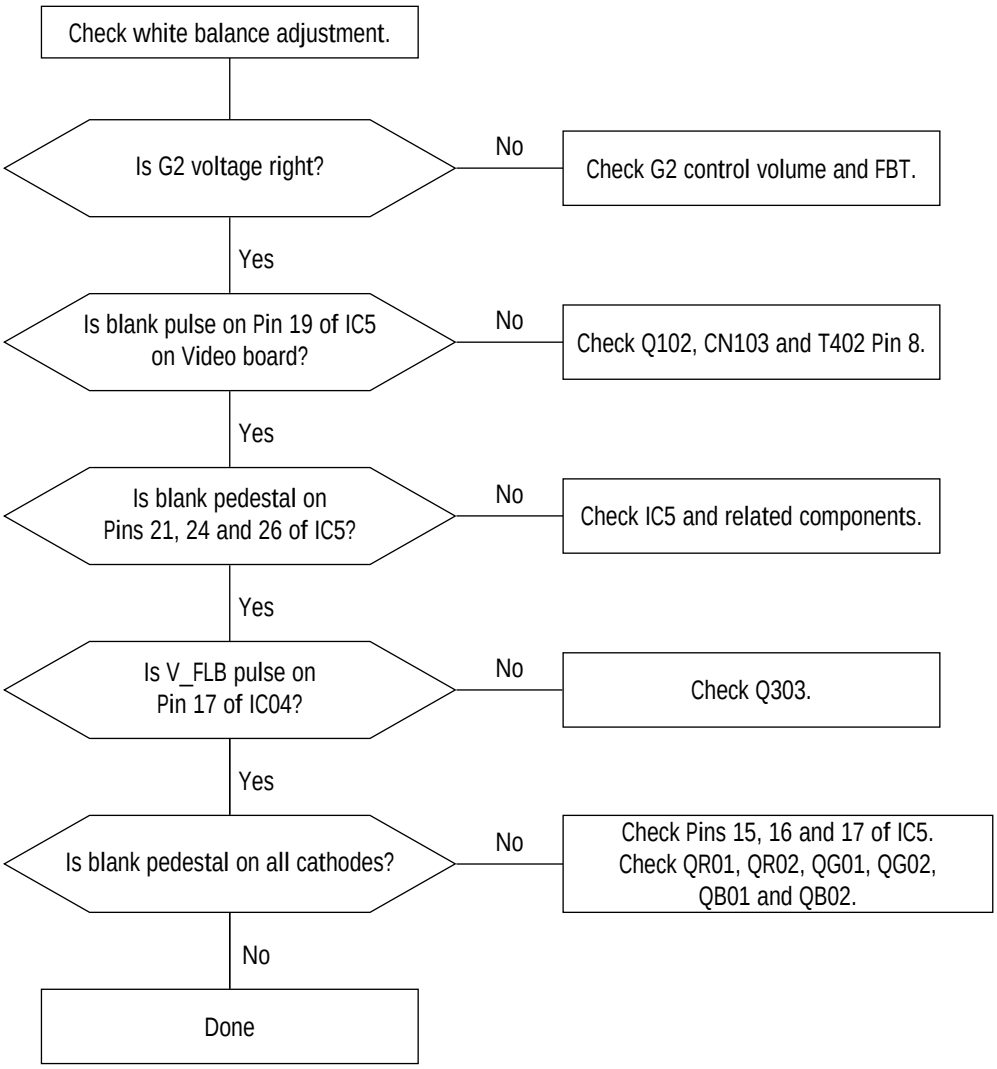
5-2-2 Shut Down



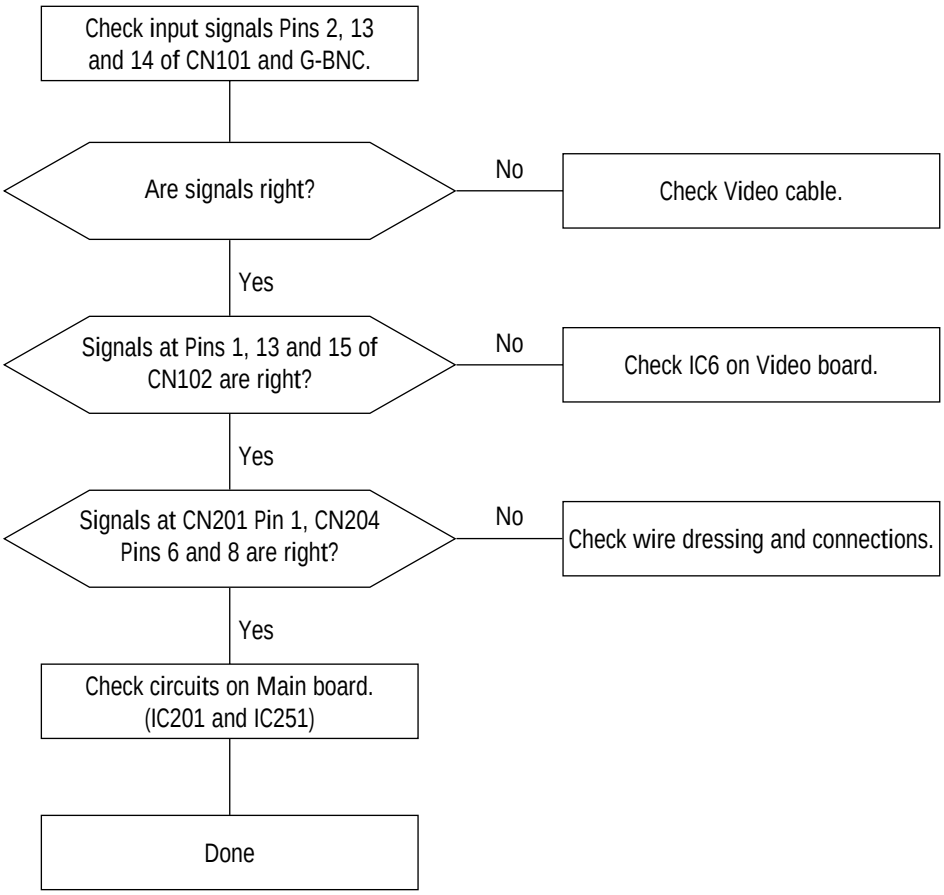
5-2-3 Missing Color


Are proper Video levels on CN101 (D-Sub) Pins 1, 2 and 3, R-BNC, G-BNC and B-BNC.
No
Check signal generator and cathode.
Yes
Are proper AC voltage on all cathodes?
No
Refer to 5-1-16 No Video.
Yes
Are proper DC voltage on all cathodes?
No
Check IC5 Pins 15, 16 and 17. Check QR01, QR02, QG01, QG02, QB01 and QB02.
Yes
Is G2 voltage right?
No
Check G2 wire, G2 control, volume and FBT.
Yes
Change the CRT.
Done

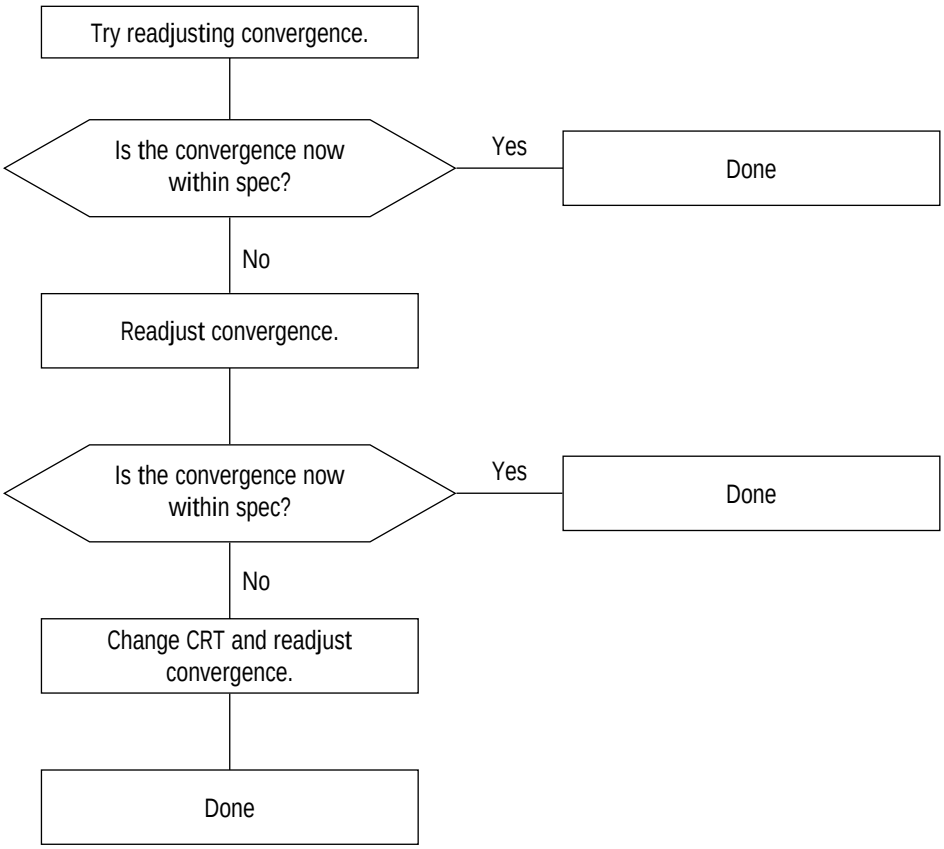
5-2-4 Visible Retrace


Check white balance adjustment.
Is G2 voltage right?
No
Check G2 control volume and FBT.
Yes
Is blank pulse on Pin 19 of IC5 on Video board?
No
Check Q102, CN103 and T402 Pin 8.
Yes
Is blank pedestal on Pins 21, 24 and 26 of IC5?
No
Check IC5 and related components.
Yes
Is V_FLB pulse on Pin 17 of IC04?
No
Check Q303.
Yes
Is blank pedestal on all cathodes?
No
Check Pins 15, 16 and 17 of IC5. Check QR01, QR02, QG01, QG02, QB01 and QB02.
No
Done

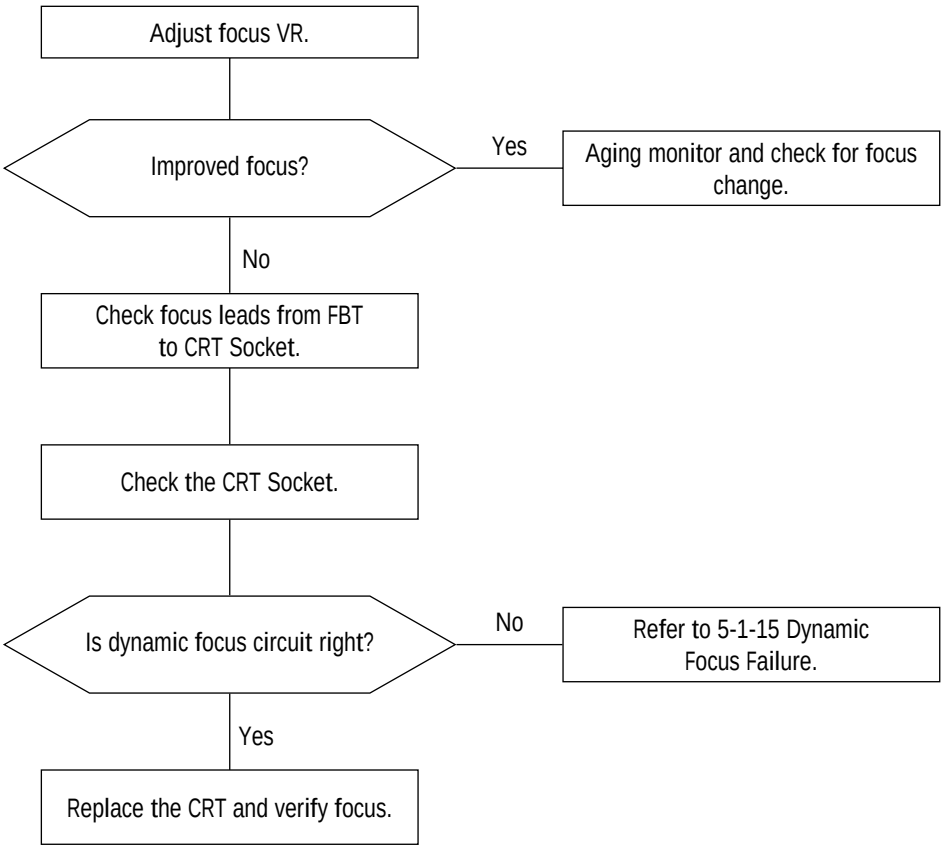
5-2-5 Unsynchronized Image


Check input signals Pins 2, 13 and 14 of CN101 and G-BNC.
Are signals right?
No
Check Video cable.
Yes
Signals at Pins 1, 13 and 15 of CN102 are right?
No
Check IC6 on Video board.
Yes
Signals at CN201 Pin 1, CN204 Pins 6 and 8 are right?
No
Check wire dressing and connections.
Yes
Check circuits on Main board. (IC201 and IC251)
Done

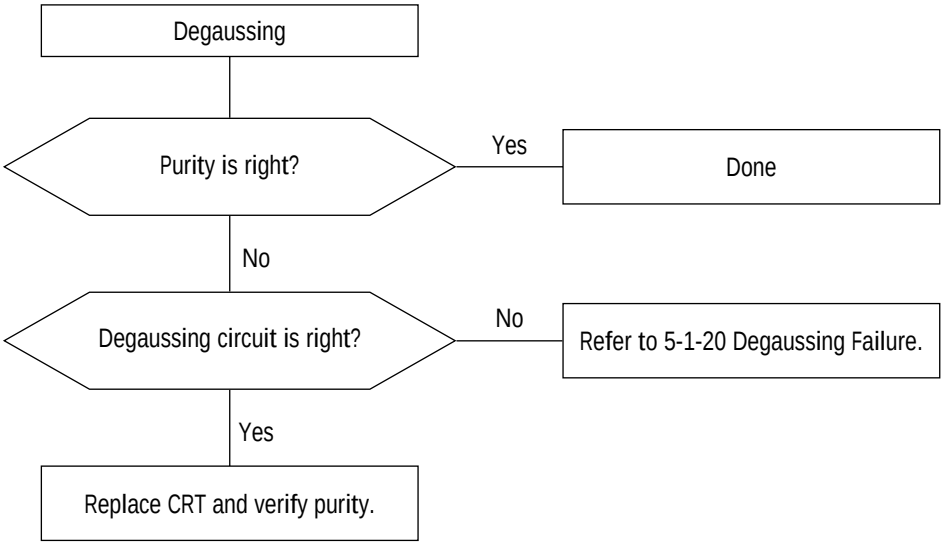
5-2-6 Misconvergence



5-2-7 Poor Focus



5-2-8 Purity Failure

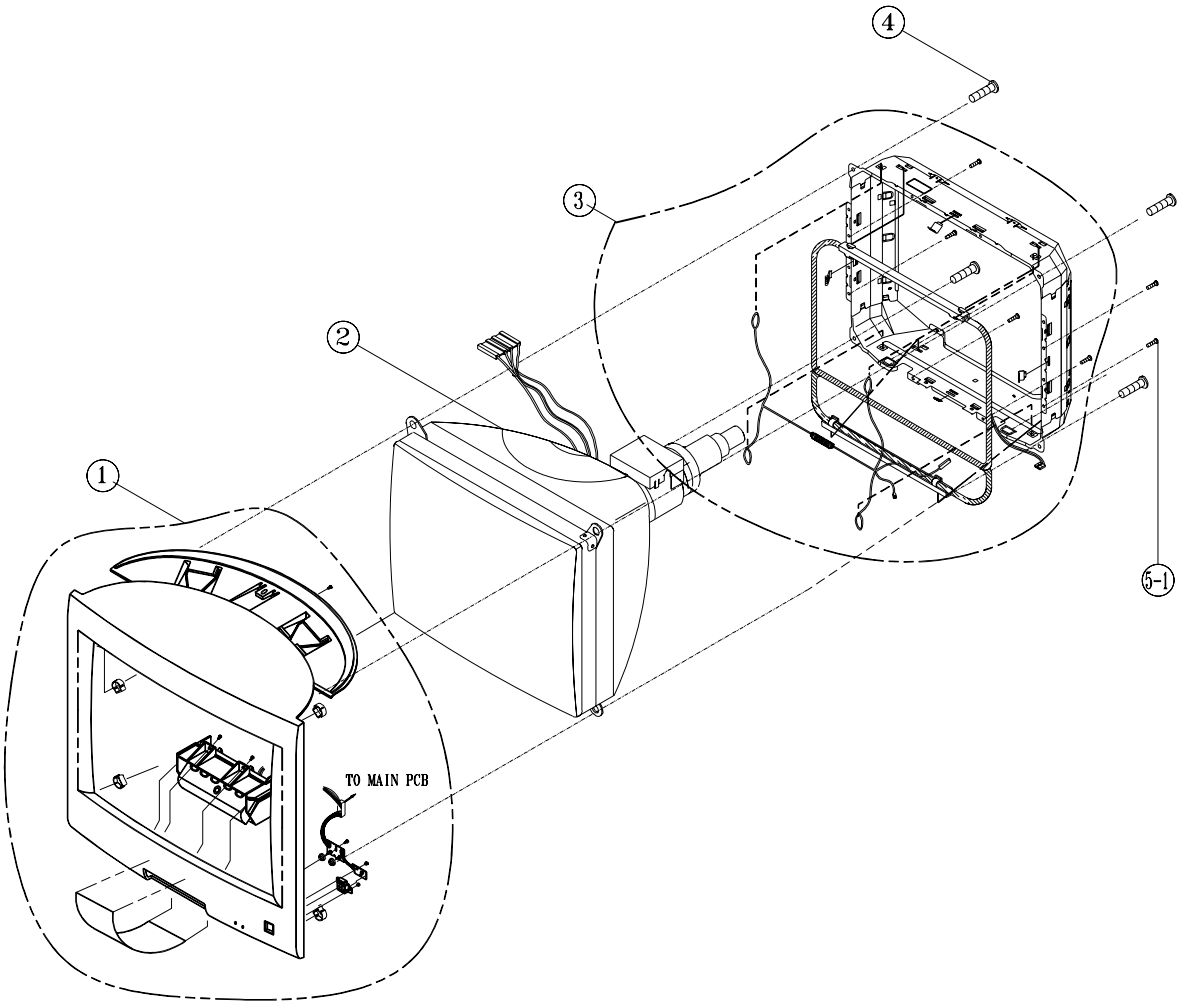


6 Exploded View and Parts List

6-1 CSE9839

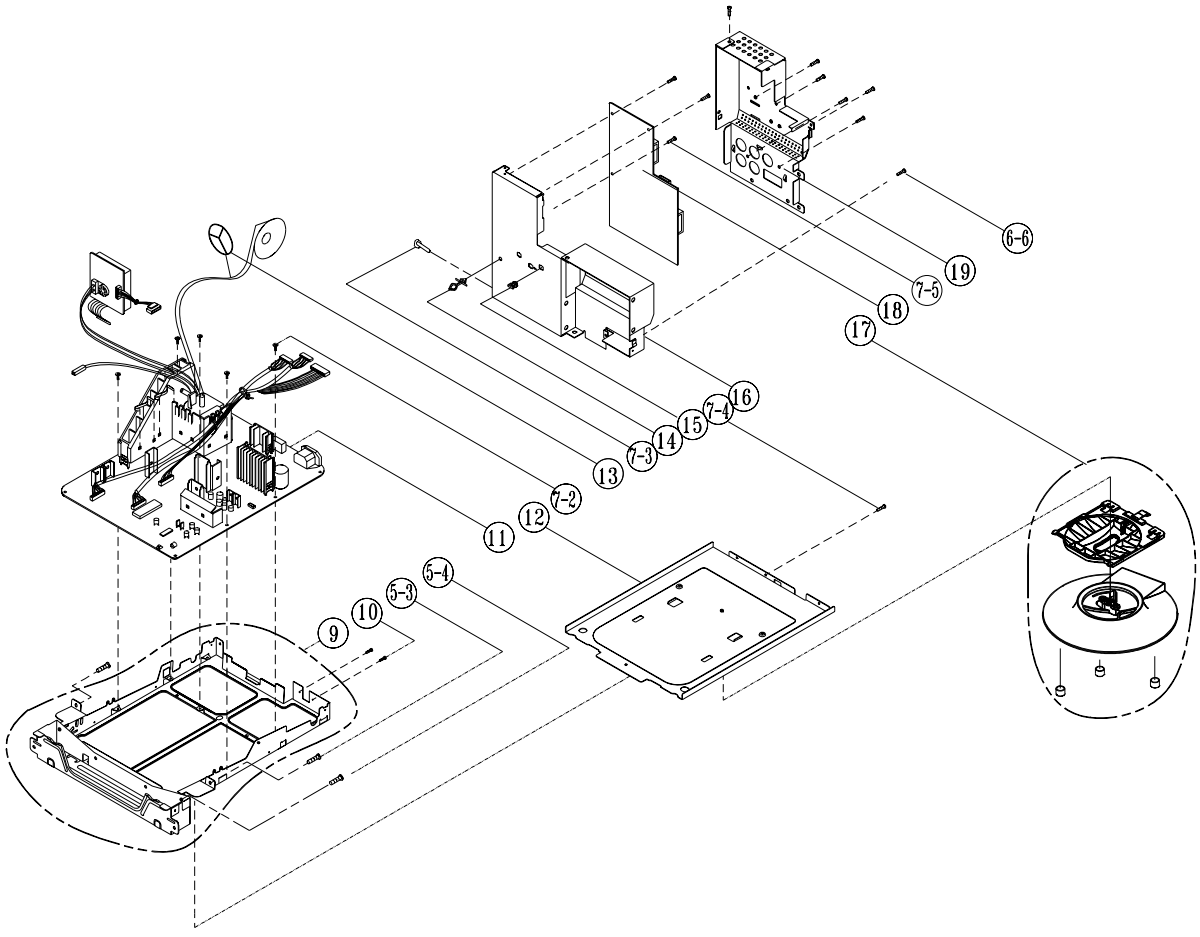
6-1-1 Front Cover & CRT Ass'y

NO	DESCRIPTION	CODE-NO	SPECIFICATION	Q'TY	REMARK
1.	UNIT-COVER FRONT	BH75-10616A	ABS HB IV16	1	
2.	CDT	-	CSE9839	1	
3.	UNIT/FRAME-CDT	BH75-10655D	SECC T1.0	1	
4.	SCREW ,TAPTITE	6006-001010	CRT 5 X 25	4	
5-1.	SCREW	6003-000009	TAPTITE BH 4 X 16	6	



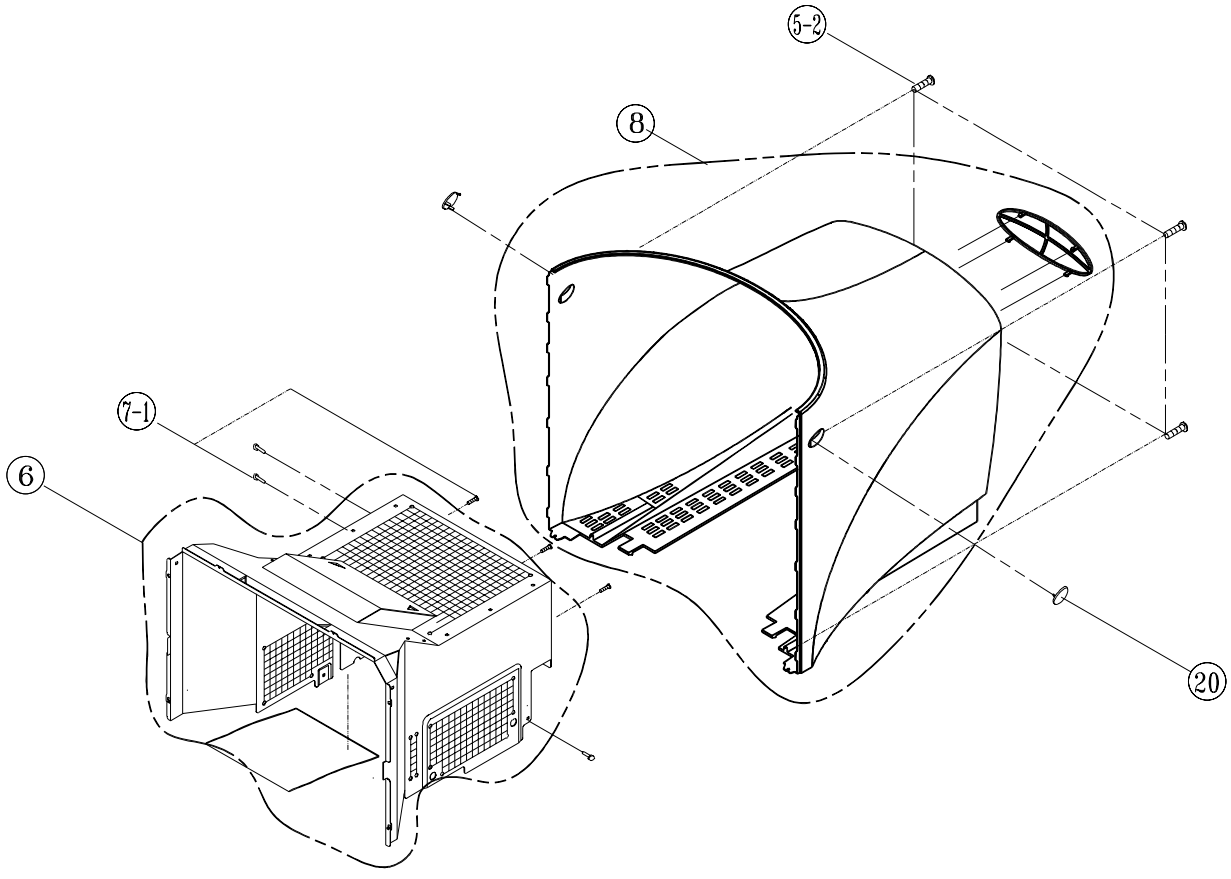
6-1-2 Chassis & Stand Ass'y

NO	DESCRIPTION	CODE-NO	SPECIFICATION	Q'TY	REMARK
5-3.	SCREW	6003-000009	TAPTITE BH 4 X 16	2	
5-4.	SCREW	6003-000009	TAPTITE BH 4 X 16	1	
7-2.	SCREW	6003-000010	TAPTITE W/W 3 X 10	5	
7-3.	SCREW	6003-000010	TAPTITE W/W 3 X 10	1	
7-4.	SCREW	6003-000010	TAPTITE W/W 3 X 10	1	
7-5.	SCREW	6003-000010	TAPTITE W/W 3 X 10	3	
7-6.	SCREW	6003-000010	TAPTITE W/W 3 X 10	7	
9.	UNIT/BRKT,MAIN-PCB	BH75-00012A	CSH9839	1	
10.	SCREW	6002-000129	TAPTITE FH 3X8 BLK	2	
11.	MAIN-PCB	-	CSE9839	1	
12.	BRKT-MOTTOM	BH70-10497A	SECC T1.0	1	
13.	LOCKER-WIRE	BH64-30002A	NYLON66,NTR	1	
14.	CABLE-CLAMP	6502-000001	DAWH	1	
15.	CABLE-CLAMP	6502-000133	DAWH	1	
16.	UNIT/BRKT-VIDEO	BH75-10712A	SECC T0.8	1	
17.	VIDEO-PCB	-	CSE9839	1	
18.	UNIT-STAND	BH75-10722A	ABS HB IV16	1	
19.	SHIELD-VIDEO	BH71-10429A	AL1050S T1.0	1	



6-1-3 Rear Cover Ass'y

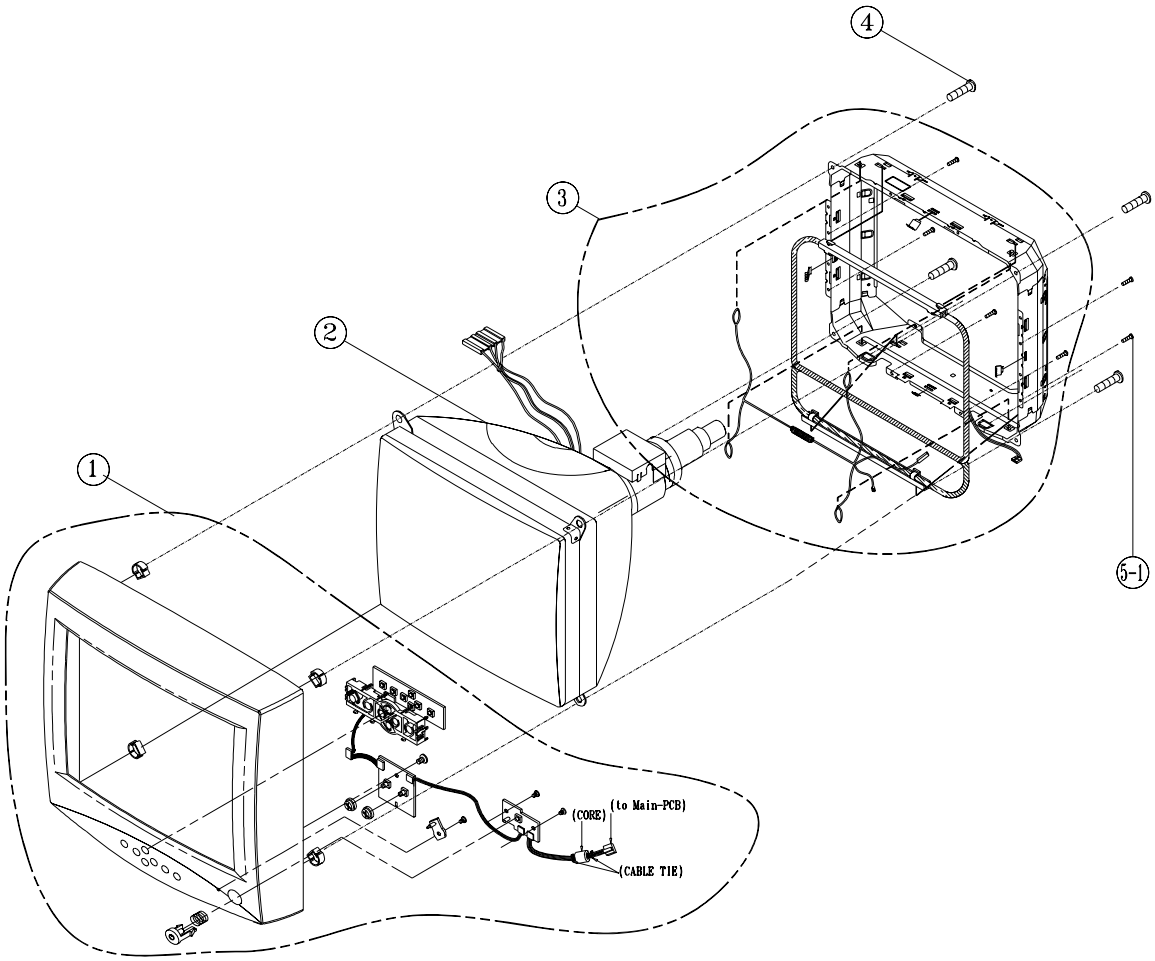
NO	DESCRIPTION	CODE-NO	SPECIFICATION	Q'TY	REMARK
5-2.	SCREW	6003-000009	TAPTITE BH 4 X 16	4	
6.	UNIT/SHIELD-TOP	BH75-10589C	A1050S T0.3	1	
7-1.	SCREW	6003-000010	TAPTITE W/W 3 X 10	6	
8.	UNIT/COVER-REAR	BH75-10656A	ABS HB IV16	1	
20.	CAP-SCREW	BH72-60628A	ABS HB IV16	1	



6-2 CSE9829

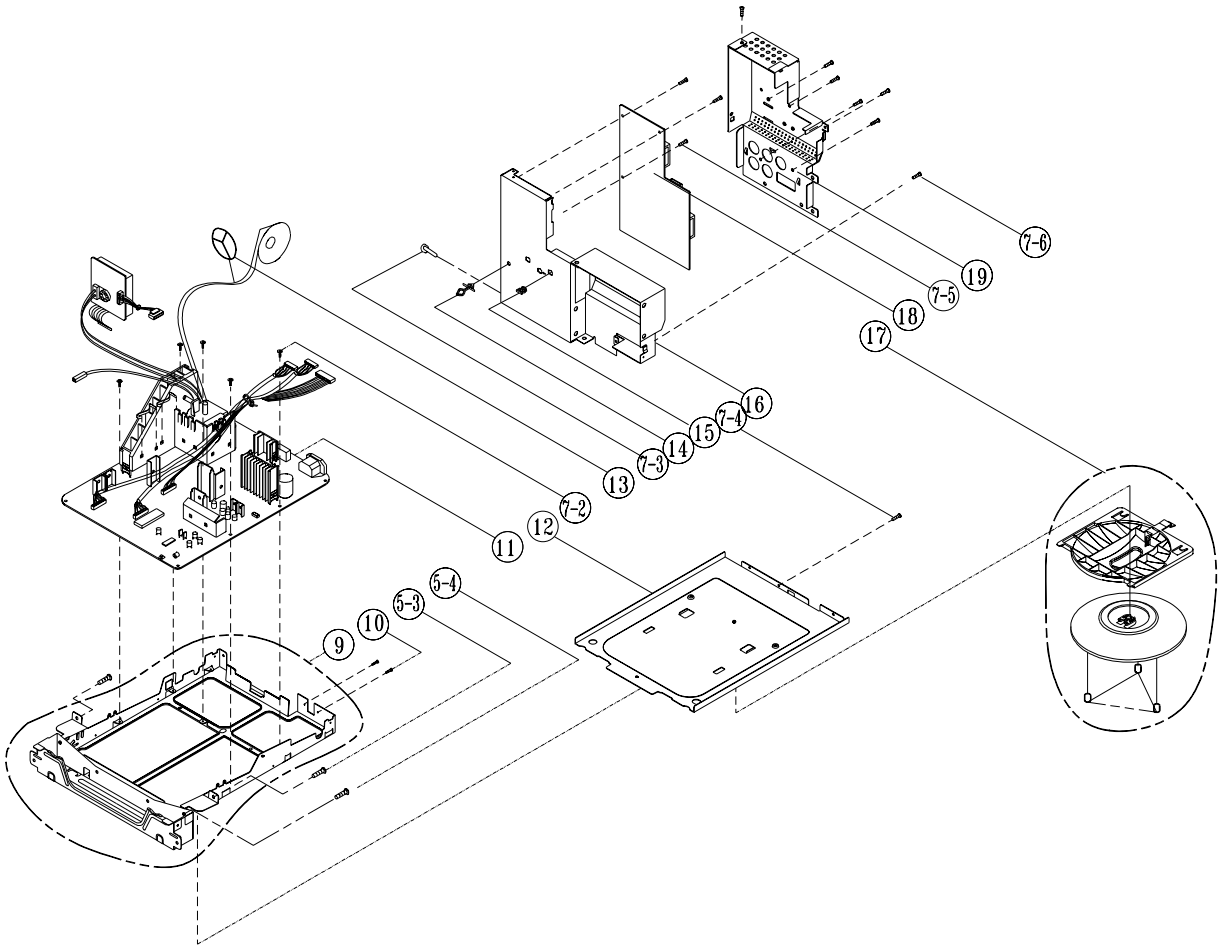
6-2-1 Front Cover & CRT Ass'y

NO	DESCRIPTION	CODE-NO	SPECIFICATION	Q'TY	REMARK
1.	UNIT-COVER FRONT	BH75-00007A	ABS HB IV16(NONE,1.5)	1	
2.	CDT	-	CSE9829	1	
3.	UNIT/FRAME-CDT	BH75-10590D	SECC T1.0	1	
4.	SCREW ,TAPTITE	6006-001010	CRT 5 X 25	4	
5-1.	SCREW	6003-000009	TAPTITE BH 4 X 16	6	



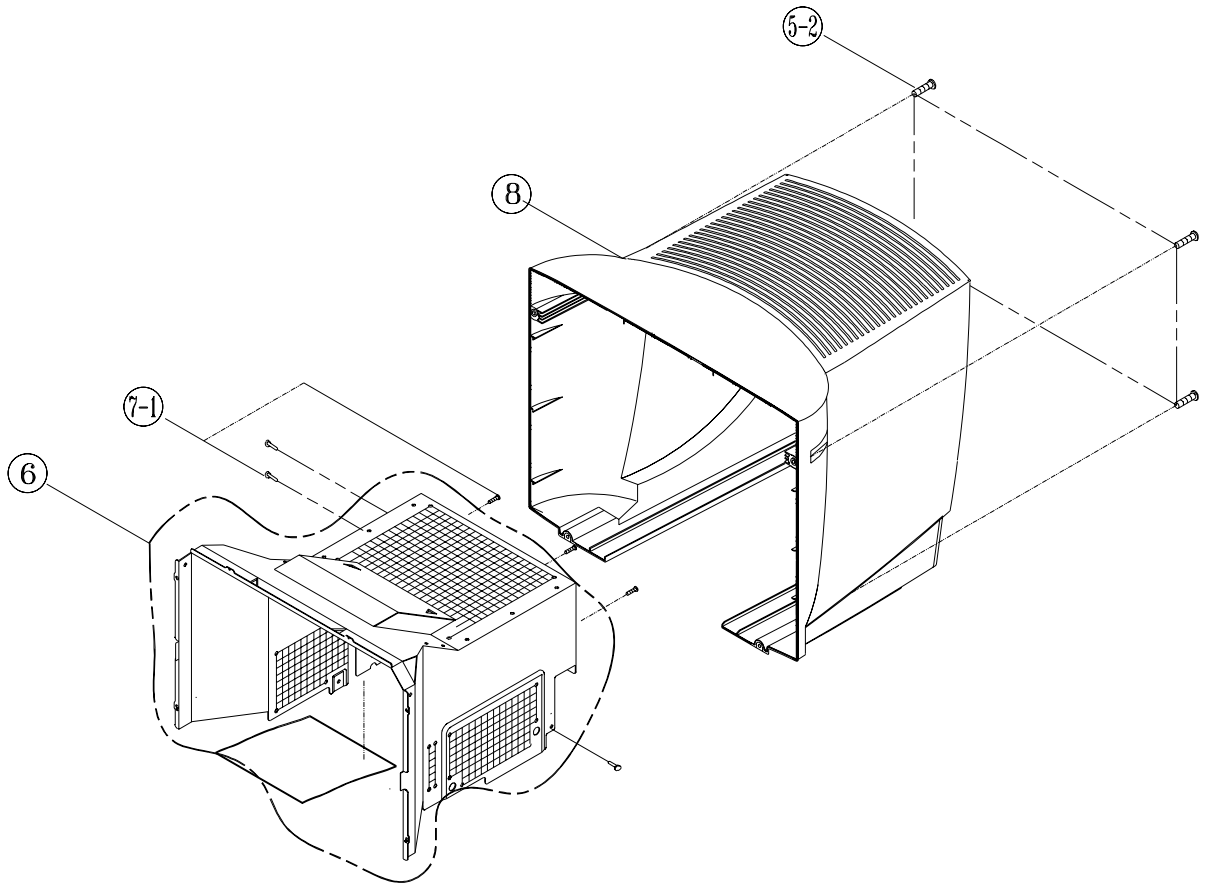
6-2-2 Chassis & Stand Ass'y

NO	DESCRIPTION	CODE-NO	SPECIFICATION	Q'TY	REMARK
5-3.	SCREW	6003-000009	TAPTITE BH 4 X 16	2	
5-4.	SCREW	6003-000009	TAPTITE BH 4 X 16	1	
7-2.	SCREW	6003-000010	TAPTITE W/W 3 X 10	5	
7-3.	SCREW	6003-000010	TAPTITE W/W 3 X 10	1	
7-4.	SCREW	6003-000010	TAPTITE W/W 3 X 10	1	
7-5.	SCREW	6003-000010	TAPTITE W/W 3 X 10	3	
7-6.	SCREW	6003-000010	TAPTITE W/W 3 X 10	7	
9.	UNIT/BRKT,MAIN-PCB	BH75-00012A	CSH9839	1	
10.	SCREW	6002-000129	TAPTITE FH 3X8 BLK	2	
11.	MAIN-PCB	-	CSE9829	1	
12.	BRKT-MOTTOM	BH70-10497A	SECC T1.0	1	
13.	LOCKER-WIRE	BH64-30002A	NYLON66,NTR	1	
14.	CABLE-CLAMP	6502-000001	DAWH	1	
15.	CABLE-CLAMP	6502-000133	DAWH	1	
16.	UNIT/BRKT-VIDEO	BH75-10712A	SECC T0.8	1	
17.	VIDEO-PCB	-	CSE9829	1	
18.	UNIT-STAND	BH75-10594A	ABS HB IV16	1	
19.	SHIELD-VIDEO	BH71-10429A	AL1050S T1.0	1	



6-2-3 Rear Cover Ass'y

NO	DESCRIPTION	CODE-NO	SPECIFICATION	Q'TY	REMARK
5-2.	SCREW	6003-000009	TAPTITE BH 4 X 16	4	
6.	UNIT/SHIELD-TOP	BH75-10589C	A1050S T0.3	1	
7-1.	SCREW	6003-000010	TAPTITE W/W 3 X 10	6	
8.	COVER-REAR	BH72-60638A	ABS HB IV16	1	



6-3 Different Parts List

NO	DESCRIPTION	CODE NO.	SPECIFICATION	Q'TY	REMARKS
1	UNIT-COVER FRONT	BH75-10591F	ABS HB, IV16	1	CSE780B
		BH75-10654E	ABS+PC, IV16	1	CSE7839
		BH75-10617A	ABS HB, IV16	1	CSE980B
2	UNIT/FRAME	BH75-10588D	CSE780B, SECC	1	CSE780B
		BH75-10657D	CSE7839, SECC	1	CSE7839
		BH75-10590C	CSE980B, SECC	1	CSE980B
3	UNIT/BRKT,MAIN-PCB	BH75-10731A	CSE780B, SECC-1, SHAFT	1	CSE780B
		BH75-10731B	CSE7839, SECC T1.0	1	CSE7839
		BH75-00012A	CSE980B,SECC T1.0	1	CSE980B
4	UNIT/STAND	BH75-10723A	ABS, HB, IV16	1	CSE780B/7839
		BH75-10722A	ABS, HB, IV16	1	CSE980B
5	UNIT/SHIELD-TOP	BH75-10587C	A1050S T0.3	1	CSE780B/7839
		BH75-10589C	A1050S T0.3	1	CSE980B
6	UNIT/COVER-REAR	BH75-10622A	ABS, IV16	1	CSE780B/7839
		BH75-10656A	ABS HB, IV16	1	CSE980B

Memo

7 Electrical Parts List

7-1 Main PCB Parts

Loc. No.	Code No.	Description	Specification	Remarks
BD20	3301-000011	CORE-FERRITE BEAD	AA,3.5x1.0x5.7mm,1500	
BD201	3301-000011	CORE-FERRITE BEAD	AA,3.5x1.0x5.7mm,1500	
BD202	3301-000011	CORE-FERRITE BEAD	AA,3.5x1.0x5.7mm,1500	
BD203	3301-000011	CORE-FERRITE BEAD	AA,3.5x1.0x5.7mm,1500	
BD204	3301-000011	CORE-FERRITE BEAD	AA,3.5x1.0x5.7mm,1500	
BD205	3301-000011	CORE-FERRITE BEAD	AA,3.5x1.0x5.7mm,1500	
BD207	3301-000011	CORE-FERRITE BEAD	AA,3.5x1.0x5.7mm,1500	
BD401	3301-000011	CORE-FERRITE BEAD	AA,3.5x1.0x5.7mm,1500	
BD403	3301-000011	CORE-FERRITE BEAD	AA,3.5x1.0x5.7mm,1500	
BD405	3301-000011	CORE-FERRITE BEAD	AA,3.5x1.0x5.7mm,1500	
BD501	3301-000011	CORE-FERRITE BEAD	AA,3.5x1.0x5.7mm,1500	
BD502	3301-000011	CORE-FERRITE BEAD	AA,3.5x1.0x5.7mm,1500	
BD601	3301-000011	CORE-FERRITE BEAD	AA,3.5x1.0x5.7mm,1500	
BD602	3301-000011	CORE-FERRITE BEAD	AA,3.5x1.0x5.7mm,1500	
BD603	3301-000011	CORE-FERRITE BEAD	AA,3.5x1.0x5.7mm,1500	
BD604	3301-000011	CORE-FERRITE BEAD	AA,3.5x1.0x5.7mm,1500	
BD605	3301-000011	CORE-FERRITE BEAD	AA,3.5x1.0x5.7mm,1500	
BD606	3301-000011	CORE-FERRITE BEAD	AA,3.5x1.0x5.7mm,1500	
BD630	3301-000011	CORE-FERRITE BEAD	AA,3.5x1.0x5.7mm,1500	
BD631	3301-000011	CORE-FERRITE BEAD	AA,3.5x1.0x5.7mm,1500	
C201	2201-000144	C-CERAMIC,DISC	100pF,5%,50V,CH,TP,8x3,5	
C202	2202-002009	C-CERAMIC,MLC-AXIAL	100nF,+80-20%,50V,Y5	
C203	2202-002009	C-CERAMIC,MLC-AXIAL	100nF,+80-20%,50V,Y5	
C204	2201-000326	C-CERAMIC,DISC	2.2nF,10%,50V,Y5P,TP,6.5x	
C205	2401-000028	C-AL	10uF,20%,50V,GP,TP,5x11,5	
C206	2202-002009	C-CERAMIC,MLC-AXIAL	100nF,+80-20%,50V,Y5	
C207	2401-000042	C-AL	100uF,20%,16V,GP,TP,6.3x7,5	
C208	2202-002009	C-CERAMIC,MLC-AXIAL	100nF,+80-20%,50V,Y5	
C209	2401-000028	C-AL	10uF,20%,50V,GP,TP,5x11,5	
C210	2202-002009	C-CERAMIC,MLC-AXIAL	100nF,+80-20%,50V,Y5	
C211	2401-000028	C-AL	10uF,20%,50V,GP,TP,5x11,5	
C212	2202-002009	C-CERAMIC,MLC-AXIAL	100nF,+80-20%,50V,Y5	
C213	2201-000389	C-CERAMIC,DISC	22pF,5%,50V,CH,TP,5.0*3.0	
C214	2201-000222	C-CERAMIC,DISC	12pF,5%,50V,NPO,TP,4x3.5	
C215	2201-000144	C-CERAMIC,DISC	100pF,5%,50V,CH,TP,8x3,5	
C216	2202-002009	C-CERAMIC,MLC-AXIAL	100nF,+80-20%,50V,Y5	
C217	2202-002009	C-CERAMIC,MLC-AXIAL	100nF,+80-20%,50V,Y5	
C218	2401-000050	C-AL	10uF,20%,16V,GP,TP,5x11,2.5	
C219	2202-002009	C-CERAMIC,MLC-AXIAL	100nF,+80-20%,50V,Y5	
C220	2202-002009	C-CERAMIC,MLC-AXIAL	100nF,+80-20%,50V,Y5	
C230	2401-001016	C-AL	3.3UF,20%,50V,BP,TP,5X11,5	
C251	2401-000042	C-AL	100uF,20%,16V,GP,TP,6.3x7,5	
C252	2202-002008	C-CERAMIC,MLC-AXIAL	10nF,+80-20%,50V,Y5V	
C253	2401-000042	C-AL	100uF,20%,16V,GP,TP,6.3x7,5	
C254	2202-002008	C-CERAMIC,MLC-AXIAL	10nF,+80-20%,50V,Y5V	

Loc. No.	Code No.	Description	Specification	Remarks
C255	2201-000389	C-CERAMIC,DISC	22pF,5%,50V,CH,TP,5.0*3.0	
C256	2201-000389	C-CERAMIC,DISC	22pF,5%,50V,CH,TP,5.0*3.0	
C257	2401-000026	C-AL	3.3UF,20%,50V,GP,TP,5X11,5	
C258	2301-000168	C-FILM,PEF	150nF,5%,100V,TP,11.5x19mm,7.	
C259	2305-000412	C-FILM,MPEF	470nF,5%,63V,TP,5mm	
C260	2202-000003	C-CERAMIC,MLC-RADIAL	680pF,0.02,100V,NPO	
C261	2305-000280	C-FILM,MPEF	220nF,10%,63V,TP,7.5x13.5mm	
C262	2301-000021	C-FILM,PEF	68nF,5%,100V,TP,10x12.5mm,5mm	
C263	2401-002075	C-AL	4.7uF,20%,50V,GP,TP,5x11,5	
C264	2202-000003	C-CERAMIC,MLC-RADIAL	680pF,0.02,100V,NPO	
C265	2301-000016	C-FILM,PEF	22nF,5%,100V,TP,7.2x4.5x9.0mm	
C267	2401-000050	C-AL	10uF,20%,16V,GP,TP,5x11,2.5	
C268	2401-000050	C-AL	10uF,20%,16V,GP,TP,5x11,2.5	
C269	2202-000654	C-CERAMIC,MLC-RADIAL	100nF,10%,50V,X7R,T	
C270	2401-001016	C-AL	3.3UF,20%,50V,BP,TP,5X11,5	
C271	2401-000603	C-AL	1uF,20%,50V,GP,TP,5x11,5	
C272	2201-000215	C-CERAMIC,DISC	120pF,5%,50V,CH,TP,9.5x3	
C274	2401-000028	C-AL	10uF,20%,50V,GP,TP,5x11,5	
C275	2401-000028	C-AL	10uF,20%,50V,GP,TP,5x11,5	
C278	2401-000603	C-AL	1uF,20%,50V,GP,TP,5x11,5	
C301	2201-000021	C-CERAMIC,DISC	100nF,+80-20%,50V,Y5V,TP	
C305	2201-000558	C-CERAMIC,DISC	470pF,10%,50V,Y5P,TP,5x3	
C306	2401-000292	C-AL	100uF,20%,16V,WT,TP,8x11.5mm,5	
C307	2201-000021	C-CERAMIC,DISC	100nF,+80-20%,50V,Y5V,TP	
C308	2201-000021	C-CERAMIC,DISC	100nF,+80-20%,50V,Y5V,TP	
C309	2401-000039	C-AL	1000uF,20%,16V,GP,TP,10x16,5	
C310	2202-002009	C-CERAMIC,MLC-AXIAL	100nF,+80-20%,50V,Y5	
C312	2202-002009	C-CERAMIC,MLC-AXIAL	100nF,+80-20%,50V,Y5	
C313	2401-000324	C-AL	100uF,20%,35V,GP,TP,6.3x11mm,5	
C314	2305-000291	C-FILM,MPEF	220nF,5%,63V,TP,7.5x13.5mm,5	
C315	2301-000013	C-FILM,PEF	4.7nF,5%,100V,TP,10.5x12.5x6.	
C316	2301-000013	C-FILM,PEF	4.7nF,5%,100V,TP,10.5x12.5x6.	
C318	2401-000597	C-AL	1uF,20%,50V,GP,TP,4x7mm,1.5mm	
C319	2201-000863	C-CERAMIC,DISC	680pF,10%,50V,Y5P,TP,5x3	
C401	2401-000025	C-AL	100uF,20%,16V,GP,TP,6.3x11,5	
C402	2401-000607	C-AL	1uF,20%,50V,WT,TP,3x5mm,2.5mm	
C403	2301-000174	C-FILM,PEF	15nF,5%,100V,TP,7.2x4.0x7.5mm	
C404	2301-000188	C-FILM,PEF	1nF,5%,100V,TP,10.5x12.5x6.5	
C405	2202-000561	C-CERAMIC,MLC-RADIAL	680pF,5%,50V,NPO,TP	
C406	2401-000053	C-AL	10uF,20%,25V,GP,TP,5x11,5	
C407	2202-002009	C-CERAMIC,MLC-AXIAL	100nF,+80-20%,50V,Y5	
C408	2202-002008	C-CERAMIC,MLC-AXIAL	10nF,+80-20%,50V,Y5V	
C409	2301-000188	C-FILM,PEF	1nF,5%,100V,TP,10.5x12.5x6.5	
C410	2401-001016	C-AL	3.3UF,20%,50V,BP,TP,5X11,5	
C411	2401-002075	C-AL	4.7uF,20%,50V,GP,TP,5x11,5	
C412	2301-000284	C-FILM,PEF	47nF,5%,100V,TP,8.5x12.5mm,5m	
C413	2202-002008	C-CERAMIC,MLC-AXIAL	10nF,+80-20%,50V,Y5V	

Loc. No.	Code No.	Description	Specification	Remarks
C414	2201-000019	C-CERAMIC,DISC	10nF,+80-20%,500V,Y5V,TP	
C415	2301-000020	C-FILM,PEF	27nF,5%,100V,TP,7.3x4x12.5mm	
C416	2401-000192	C-AL	1000uF,20%,50V,GP,TP,16x25,7.5	
C417	2201-000291	C-CERAMIC,DISC	1nF,10%,500V,Y5P,TP,8.5x5	
C420	2301-000148	C-FILM,PEF	10nF,5%,100V,TP,7x3.2x7mm,5mm	
C423	2303-001022	C-FILM,PPF	2nF,5%,2.5KV,TP,23x12x19mm,7.	
C424	2303-001022	C-FILM,PPF	2nF,5%,2.5KV,TP,23x12x19mm,7.	
C428	2201-000019	C-CERAMIC,DISC	10nF,+80-20%,500V,Y5V,TP	
C430	2306-000125	C-FILM,MPPF	120nF,5%,250V,TP,19x15x7,7.5	
C431	2306-000131	C-FILM,MPPF	150nF,5%,250V,TP,19x16x7.5,7	
C433	2306-000234	C-FILM,MPPF	560nF,5%,250V,BK,26x20x13,20	
C434	2306-000147	C-FILM,MPPF	1uF,5%,250V,BK,26x24x15,22.5	
C435	2306-000131	C-FILM,MPPF	150nF,5%,250V,TP,19x16x7.5,7	
C437	2306-001011	C-FILM,MPPF	56nF,5%,250V,TP,19x7.5x14.5	
C440	2201-000012	C-CERAMIC,DISC	220pF,10%,1KV,Y5P,TP,6x5	
C441	2306-000187	C-FILM,MPPF	330nF,5%,400V,BK,26x20.5x13.	
C442	2401-000597	C-AL	1uF,20%,50V,GP,TP,4x7mm,1.5mm	
C445	2301-000257	C-FILM,PEF	4.7nF,10%,100V,TP,5.8x12.5mm	
C446	2305-000407	C-FILM,MPEF	470nF,5%,100V,TP,5mm	
C447	2305-000407	C-FILM,MPEF	470nF,5%,100V,TP,5mm	
C501	2401-001585	C-AL	47uF,20%,50V,WT,TP,8x11.5,5	
C502	2202-000517	C-CERAMIC,MLC-RADIAL	470pF,5%,100V,NPO,T	
C503	2305-000359	C-FILM,MPEF	33nF,10%,100V,TP,14.5x8.5mm	
C504	2303-000145	C-FILM,PPF	1nF,10%,2KV,TP,23x13x8,7.5mm	⚠
C505	2401-000046	C-AL	10uF,20%,250V,GP,TP,10x20,5	
C506	2301-001259	C-FILM,MPPF	100nF,5%,400V,TP,19x8x16,7.5	
C507	2301-000019	C-FILM,PEF	47nF,10%,100V,TP,8.9x5.1x13.5	
C508	2301-000016	C-FILM,PEF	22nF,5%,100V,TP,7.2x4.5x9.0mm	
C509	2401-000010	C-AL	220uF,20%,16V,GP,6.3x11mm,2.	
C510	2401-002462	C-AL	33uF,20%,16V,GP,TP,5x11,5	
C511	2201-000163	C-CERAMIC,DISC	10nF,79.8,50V,Y5V,TP,6.5x	
C512	2305-000004	C-FILM,MPEF	220nF,10%,100V,TP,12.7x16,5m	
C513	2202-000428	C-CERAMIC,MLC-RADIAL	220pF,5%,100V,NPO,T	
C514	2401-000031	C-AL	47uF,20%,16V,GP,TP,5x11,5	
C515	2201-000163	C-CERAMIC,DISC	10nF,79.8,50V,Y5V,TP,6.5x	
C516	2401-001576	C-AL	47uF,20%,50V,GP,TP,8x11.5,5	
C518	2305-000009	C-FILM,MPEF	100nF,5%,250V,TP,13x11x6.5,7	
C521	2305-000412	C-FILM,MPEF	470nF,5%,63V,TP,5mm	
C522	2401-000649	C-AL	2.2uF,20%,50V,BP,TP,5x11,5	
C523	2401-000053	C-AL	10uF,20%,25V,GP,TP,5x11,5	
C524	2401-000603	C-AL	1uF,20%,50V,GP,TP,5x11,5	
C525	2305-000665	C-FILM,MPEF	100nF,5%,63V,TP,7.5x4.0x5.0m	
C526	2301-000284	C-FILM,PEF	47nF,5%,100V,TP,8.5x12.5mm,5m	
C527	2401-000050	C-AL	10uF,20%,16V,GP,TP,5x11,2.5	
C528	2401-001281	C-AL	4.7uF,20%,50V,WT,TP,5x11,5	
C551	2401-000055	C-AL	1uF,20%,160V,WT,TP,3x11,5mm	
C552	2305-000004	C-FILM,MPEF	220nF,10%,100V,TP,12.7x16,5m	

Loc. No.	Code No.	Description	Specification	Remarks
C553	2201-000285	C-CERAMIC,DISC	1nF,10%,1KV,Y5P,TP,10x5,5	
C554	2305-000291	C-FILM,MPEF	220nF,5%,63V,TP,7.5x13.5mm,5	
C555	2201-000012	C-CERAMIC,DISC	220pF,10%,1KV,Y5P,TP,6x5	
C604	2501-000203	C-PAPER	470nF,20%,275VAC,TP,26x11mm,22	⚠
C605	2201-000023	C-CERAMIC,DISC	2.2nF,20%,125V,Y5U,TP,11x	⚠
C606	2201-000023	C-CERAMIC,DISC	2.2nF,20%,125V,Y5U,TP,11x	⚠
C607	2401-003089	C-AL	33uF,20%,100V,GP,TP,8X11.5,5	
C608	2202-002008	C-CERAMIC,MLC-AXIAL	10nF,+80-20%,50V,Y5V	
C609	2401-001137	C-AL	330uF,20%,400V,GP,BK,30x45mm,1	⚠
C610	2201-000019	C-CERAMIC,DISC	10nF,+80-20%,500V,Y5V,TP	
C611	2401-000393	C-AL	10uF,20%,100V,WT,TP,8x11.5,5	
C612	2201-000129	C-CERAMIC,DISC	100pF,10%,1KV,Y5P,TP,6x5	
C614	2301-000016	C-FILM,PEF	22nF,5%,100V,TP,7.2x4.5x9.0mm	
C615	2305-000412	C-FILM,MPEF	470nF,5%,63V,TP,5mm	
C616	2401-000613	C-AL	1uF,20%,50V,WT,TP,5x11,5	
C617	2301-000010	C-FILM,PEF	100nF,5%,100V,TP,11.5x12.5mm	
C630	2202-002009	C-CERAMIC,MLC-AXIAL	100nF,+80-20%,50V,Y5	
C631	2301-000013	C-FILM,PEF	4.7nF,5%,100V,TP,10.5x12.5x6.	
C633	2401-000041	C-AL	220uF,20%,16V,GP,TP,10x12.5,5	
C634	2401-000292	C-AL	100uF,20%,16V,WT,TP,8x11.5mm,5	
C635	2202-002008	C-CERAMIC,MLC-AXIAL	10nF,+80-20%,50V,Y5V	
C636	2401-003003	C-AL	68uF,20%,100V,GP,TP,10x16mm,5m	
C637	2401-001173	C-AL	33uF,20%,250V,GP,TP,12.5x20mm	
C638	2401-001173	C-AL	33uF,20%,250V,GP,TP,12.5x20mm	
C639	2401-000039	C-AL	1000uF,20%,16V,GP,TP,10x16,5	
C640	2401-000142	C-AL	1000uF,20%,16V,WT,TP,10x20,5	
C641	2202-002009	C-CERAMIC,MLC-AXIAL	100nF,+80-20%,50V,Y5	
C642	2401-001838	C-AL	470uF,20%,25V,WT,TP,10x16,5	
C643	2401-000142	C-AL	1000uF,20%,16V,WT,TP,10x20,5	
C644	2401-000037	C-AL	470uF,20%,16V,GP,TP,8x11.5,5	
C645	2401-000876	C-AL	220uF,20%,50V,GP,TP,10x16,5	
C646	2401-000310	C-AL	100uF,20%,25V,GP,TP,6.3x11,5	
C647	2301-000174	C-FILM,PEF	15nF,5%,100V,TP,7.2x4.0x7.5mm	
C648	2301-000004	C-FILM,PEF	2.2nF,5%,100V,TP,5.5X10X2.9,5	
C649	2201-000019	C-CERAMIC,DISC	10nF,+80-20%,500V,Y5V,TP	
C651	2401-000029	C-AL	10uF,20%,100V,GP,TP,6.3x11,5	
C652	2301-000148	C-FILM,PEF	10nF,5%,100V,TP,7x3.2x7mm,5mm	
C653	2201-000024	C-CERAMIC,DISC	4.7nF,20%,250VAC,Y5U,TP,1	⚠
CIS	0502-000348	TR-POWER	TIP29C,NPN,2W,TO-220,15-75	
CIS	0502-000351	TR-POWER	TIP30,PNP,2W,TO-220AB,15-75	
CIS	1203-000165	IC-POSI.ADJUST REG.	78R12,TO-220,3P	
CIS	BH13-00002A	IC-HYBRID	SE-CHASSIS,KA2S0880B,TO-3P-5L	
CIS	1204-000308	IC-VERTICAL PROCESSO	TDA8172,ZSIP,7P,200	
CIS	0402-001215	DIODE-RECTIFIER	SDS10U150S,1500V,10A,TO-	
CIS	0502-001143	TR-POWER	2SC5583,NPN,150W,TOP-3L,ST,6-1	
CIS	0502-001078	TR-POWER	2SC5296,NPN,3W,TO-3P,ST,15-25	
CIS	0505-001130	FET-SILICON	IRF740A,N,400V,10uA,550mohm	

Loc. No.	Code No.	Description	Specification	Remarks
CIS	0505-001135	FET-SILICON	IRF640A,N,200V,18A,0.18ohm,1	
CIS	0505-001152	FET-SILICON	IRFS630A,N,200V,10uA,400mohm	
CIS	0505-001202	FET-SILICON	IRFS640A,N,200V,9.8A,0.18ohm	
CN201	3711-003873	CONNECTOR-HEADER	BOX,7P,1R,2mm,STRAIGHT	
CN202	3711-004122	CONNECTOR-HEADER	BOX,14P,1R,2mm,STRAIGHT	
CN203	3711-003851	CONNECTOR-HEADER	BOX,10P,1R,2mm,STRAIGHT	
CN204	3711-003843	CONNECTOR-HEADER	BOX,8P,1R,2mm,STRAIGHT	
CN205	3711-000197	CONNECTOR-HEADER	1WALL,3P,1R,2.5mm,STRAI	17” CDT
	3711-000885	CONNECTOR-HEADER	3WALL,3P,1R,2.5mm,STRAI	19” CDT
CN206	BH39-40361R	CBF-HARNESS	1P,170MM,BLK,UL1015,AWG22,ST	
CN251	BH71-40300A	PIN-HINGE	BRASS,D2.36,SN,HEAT/SINK	
CN401	BH71-40300A	PIN-HINGE	BRASS,D2.36,SN,HEAT/SINK	
CN402	BH71-40300A	PIN-HINGE	BRASS,D2.36,SN,HEAT/SINK	
CN410	3711-003989	CONNECTOR-HEADER	NOWALL,4P,1R,8mm,STRAIG	
CN411	BH71-40300A	PIN-HINGE	BRASS,D2.36,SN,HEAT/SINK	
CN412	BH71-40300A	PIN-HINGE	BRASS,D2.36,SN,HEAT/SINK	
CN413	BH71-40300A	PIN-HINGE	BRASS,D2.36,SN,HEAT/SINK	
CN414	BH71-40300A	PIN-HINGE	BRASS,D2.36,SN,HEAT/SINK	
CN415	BH71-40300A	PIN-HINGE	BRASS,D2.36,SN,HEAT/SINK	
CN416	BH71-40300A	PIN-HINGE	BRASS,D2.36,SN,HEAT/SINK	
CN417	BH71-40300A	PIN-HINGE	BRASS,D2.36,SN,HEAT/SINK	
CN418	BH71-40300A	PIN-HINGE	BRASS,D2.36,SN,HEAT/SINK	
CN501	BH71-40300A	PIN-HINGE	BRASS,D2.36,SN,HEAT/SINK	
CN601	3711-000217	CONNECTOR-HEADER	1WALL,3P,1R,3.96mm,STRA	
CN602	BH71-40300A	PIN-HINGE	BRASS,D2.36,SN,HEAT/SINK	
CN603	BH71-40300A	PIN-HINGE	BRASS,D2.36,SN,HEAT/SINK	
CN607	BH71-40300A	PIN-HINGE	BRASS,D2.36,SN,HEAT/SINK	
CN608	BH71-40300A	PIN-HINGE	BRASS,D2.36,SN,HEAT/SINK	
CN609	BH71-40300A	PIN-HINGE	BRASS,D2.36,SN,HEAT/SINK	
CN610	BH71-40300A	PIN-HINGE	BRASS,D2.36,SN,HEAT/SINK	
D201	0401-000005	DIODE-SWITCHING	1N4148,75V,200MA,DO-35,T	
D251	0401-000005	DIODE-SWITCHING	1N4148,75V,200MA,DO-35,T	
D252	0401-000005	DIODE-SWITCHING	1N4148,75V,200MA,DO-35,T	
D253	0401-000005	DIODE-SWITCHING	1N4148,75V,200MA,DO-35,T	
D301	0402-000126	DIODE-RECTIFIER	1N4001GP,50V,1A,DO-41,TP	
D302	0402-000128	DIODE-RECTIFIER	1N4002GP,100V,1A,DO-41,T	
D304	0401-000005	DIODE-SWITCHING	1N4148,75V,200MA,DO-35,T	
D401	0401-000005	DIODE-SWITCHING	1N4148,75V,200MA,DO-35,T	
D402	0401-000005	DIODE-SWITCHING	1N4148,75V,200MA,DO-35,T	
D404	0401-000005	DIODE-SWITCHING	1N4148,75V,200MA,DO-35,T	
D406	0401-000005	DIODE-SWITCHING	1N4148,75V,200MA,DO-35,T	
D407	0401-000006	DIODE-SWITCHING	BAV21,250V,250mA,DO-35,T	
D408	0402-000274	DIODE-RECTIFIER	UF4004,400V,1A,DO-41,TP	
D410	0402-000208	DIODE-RECTIFIER	EK-04,40V,1.5A,DO-41	
D411	0402-000272	DIODE-RECTIFIER	UF4001,50V,1A,DO-41,TP	
D413	0402-000007	DIODE-RECTIFIER	1N4937GP,600V,1A,DO-41,T	
D414	0402-000007	DIODE-RECTIFIER	1N4937GP,600V,1A,DO-41,T	

Loc. No.	Code No.	Description	Specification	Remarks
D415	0401-000005	DIODE-SWITCHING	1N4148,75V,200MA,DO-35,T	
D416	0402-000274	DIODE-RECTIFIER	UF4004,400V,1A,DO-41,TP	
D419	0402-000006	DIODE-RECTIFIER	1N4007GP,1000V,1A,DO-41	
D420	0402-000274	DIODE-RECTIFIER	UF4004,400V,1A,DO-41,TP	
D421	0401-000005	DIODE-SWITCHING	1N4148,75V,200MA,DO-35,T	
D501	0402-000208	DIODE-RECTIFIER	EK-04,40V,1.5A,DO-41	
D503	0402-000274	DIODE-RECTIFIER	UF4004,400V,1A,DO-41,TP	
D504	0401-000005	DIODE-SWITCHING	1N4148,75V,200MA,DO-35,T	
D505	0401-000005	DIODE-SWITCHING	1N4148,75V,200MA,DO-35,T	
D506	0401-000005	DIODE-SWITCHING	1N4148,75V,200MA,DO-35,T	
D507	0401-000005	DIODE-SWITCHING	1N4148,75V,200MA,DO-35,T	
D508	0402-000007	DIODE-RECTIFIER	1N4937GP,600V,1A,DO-41,T	
D509	0401-000006	DIODE-SWITCHING	BAV21,250V,250mA,DO-35,T	
D511	0401-000005	DIODE-SWITCHING	1N4148,75V,200MA,DO-35,T	
D551	0401-000005	DIODE-SWITCHING	1N4148,75V,200MA,DO-35,T	
D552	0401-000005	DIODE-SWITCHING	1N4148,75V,200MA,DO-35,T	
D553	0401-000005	DIODE-SWITCHING	1N4148,75V,200MA,DO-35,T	
D559	0401-000005	DIODE-SWITCHING	1N4148,75V,200MA,DO-35,T	
D601	0402-001227	DIODE-BRIDGE	D3SBA60,600V,2.3A,SIP4,BK	⚠
D602	0402-000012	DIODE-RECTIFIER	UF4007,1KV,1A,DO-41,TP	
D603	0401-000005	DIODE-SWITCHING	1N4148,75V,200MA,DO-35,T	
D604	0402-000546	DIODE-RECTIFIER	TVR10G,400V,1.0A,DO-41,T	
D605	0402-000017	DIODE-RECTIFIER	RGP02-12,1200V,0.5A,DO-2	
D606	0401-000005	DIODE-SWITCHING	1N4148,75V,200MA,DO-35,T	
D607	0402-000017	DIODE-RECTIFIER	RGP02-12,1200V,0.5A,DO-2	
D630	0401-000005	DIODE-SWITCHING	1N4148,75V,200MA,DO-35,T	
D631	0401-000005	DIODE-SWITCHING	1N4148,75V,200MA,DO-35,T	
D632	0402-000454	DIODE-RECTIFIER	RG10V1,400V,1.2A,DO-201	
D633	0402-000328	DIODE-RECTIFIER	31DF6,600V,3A,DO-201AD	
D634	0402-000454	DIODE-RECTIFIER	RG10V1,400V,1.2A,DO-201	
D635	0402-000454	DIODE-RECTIFIER	RG10V1,400V,1.2A,DO-201	
D636	0402-000274	DIODE-RECTIFIER	UF4004,400V,1A,DO-41,TP	
D637	0402-000249	DIODE-RECTIFIER	RG4,400V,1.5A	
D638	0402-000249	DIODE-RECTIFIER	RG4,400V,1.5A	
D639	0401-000005	DIODE-SWITCHING	1N4148,75V,200MA,DO-35,T	
D641	0402-000328	DIODE-RECTIFIER	31DF6,600V,3A,DO-201AD	
D642	0402-000012	DIODE-RECTIFIER	UF4007,1KV,1A,DO-41,TP	
FG601	3601-000455	FUSE-FERRULE	250V,4A,TIME-LAG,GLASS,5.2x	
FH601	3602-000001	FUSE-CLIP	30mohm	
HS301	BH99-10049B	ASSY,HEAT/SINK	H/S,SPRING,TDA8172,OI	
HS401	BH99-10019E	ASSY,HEAT/SINK	H/S TR,SCREW+NUT,IRF740A	
HS402	BH99-10057B	ASSY,HEAT/SINK	H/S,SPRING,D10U150S,2SC55	
HS409	BH99-10059C	ASSY,HEAT/SINK	H/S,SCREW+NUT,IRFS630A,IR	
HS502	BH99-10058A	ASSY,HEAT/SINK	H/S,SPRING,C5296,IRF740A	
HS551	BH99-10019F	ASSY,HEAT/SINK	H/S TR,SCREW+NUT,TIP29C	
HS552	BH99-10019G	ASSY,HEAT/SINK	H/S TR,SCREW+NUT,TIP30	
HS601	BH99-10046E	ASSY,HEAT/SINK	H/S,SPRING,KA2S0880B	

Loc. No.	Code No.	Description	Specification	Remarks
HS603	BH99-10021L	ASSY,HEAT/SINK	H/S TR,SCREW+NUT,78R12	
HS604	BH99-10010Q	ASSY,HEAT/SINK	H/S TR,SCREW+NUT,7805	
IC201	0903-001063	IC-MICROCONTROLLER	72E75,8BIT,DIP,42P,60	
IC201_SOCK	3704-001071	SOCKET-IC	42P,DIP,SN,1.778mm	
IC202	1203-000495	IC-RESET	7045,T0-92,3P,PLASTIC,4.3/4.	
IC203	1103-001106	IC-EEPROM	24C080,1028x8BIT,DIP,8P,300MIL	
IC205	2011-000161	R-NETWORK	10KOHM,10%,1/8W,A,SIP,10P,BK	
IC251	1204-001448	IC-DEF. PROCESSOR	SAM9222G,DIP,32P,300MI	
IC401	1203-001099	IC-PWM CONTROLLER	3843,DIP,8P,250MIL,PLA	
IC403	1201-000229	IC-OP AMP	324,DIP,14P,300MIL,QUAD,100V/m	
IC501	1203-000182	IC-POSI.ADJUST REG.	494,DIP,16P,300MIL,P	⚠
IC602	0604-001018	PHOTO-COUPLER	DAR-TR,63-125%,200mW,DIP-4	⚠
IC604	1203-000002	IC-POSI.ADJUST REG.	431,TO-92,3P,PLAST	
L401	BH27-20345J	COIL-HORIZ.CENTER	3.5mH,OB6*30-1HHA,BU	
L402	BH26-30338W	TRANS-H.LINEARITY	47.5mH/3.9uH,5P,DR1420	17"SDD,TSB
	BH26-00001A	TRANS-H.LINEARITY	47.5mH/5.0uH,5P,DR1420	17"IFT,19"CDT
L403	2701-000128	INDUCTOR-AXIAL	15uH,10%,4.2x9.8mm	
L501	2701-000154	INDUCTOR-AXIAL	220uH,10%,4.2x9.8mm	
L503	2701-000154	INDUCTOR-AXIAL	220uH,10%,4.2x9.8mm	
L601	BH27-20345K	COIL-LINE FILTER	18.0mH,SQ2424,BULK	⚠
LC601	2901-000003	FILTER-EMI AC LINE	250V,3A,100nF/2x2.2	⚠
POS601	1404-001154	THERMISTOR-PTC	4.5OHM,+30%/-20%,220V,270	
Q201	0501-000122	TR-SMALL SIGNAL	2N3904,NPN,625mW,TO-92,T	
Q202	0501-000122	TR-SMALL SIGNAL	2N3904,NPN,625mW,TO-92,T	
Q204	0501-000586	TR-SMALL SIGNAL	KSC945,NPN,250mW,TO-92,T	
Q205	0501-000404	TR-SMALL SIGNAL	KSD1616-Y,NPN,750mW,TO-9	
Q206	0501-000321	TR-SMALL SIGNAL	KSB1116-Y,PNP,0.75W,TO-9	
Q252	0501-000122	TR-SMALL SIGNAL	2N3904,NPN,625mW,TO-92,T	
Q253	0501-000586	TR-SMALL SIGNAL	KSC945,NPN,250mW,TO-92,T	
Q254	0501-000303	TR-SMALL SIGNAL	KSA733,PNP,250mW,TO-92,T	
Q303	0501-000586	TR-SMALL SIGNAL	KSC945,NPN,250mW,TO-92,T	
Q401	0501-000303	TR-SMALL SIGNAL	KSA733,PNP,250mW,TO-92,T	
Q406	0505-001136	FET-SILICON	IRF610A,N,200V,3.3A,1.5ohm,3	
Q412	0505-001152	FET-SILICON	IRFS630A,N,200V,10uA,400mohm	
Q414	0502-000006	TR-POWER	KSC1507,NPN,15W,TO-220,TP,120-	
Q415	0501-000321	TR-SMALL SIGNAL	KSB1116-Y,PNP,0.75W,TO-9	⚠
Q501	0505-001247	FET-SILICON	IRFU210A,N,200V,2.7A,1.5ohm	
Q504	0501-000303	TR-SMALL SIGNAL	KSA733,PNP,250mW,TO-92,T	
Q505	0501-000483	TR-SMALL SIGNAL	KSP2222A,NPN,625mW,TO-92	
Q507	0501-000586	TR-SMALL SIGNAL	KSC945,NPN,250mW,TO-92,T	
Q553	0501-000140	TR-SMALL SIGNAL	2N5551,NPN,625mW,TO-92	
Q554	0501-000413	TR-SMALL SIGNAL	KSP44,NPN,625mW,TO-92	
Q601	0502-000006	TR-POWER	KSC1507,NPN,15W,TO-220,TP,120-	
Q630	0501-000010	TR-SMALL SIGNAL	KSC1008,NPN,800mW,TO-92	
Q631	0502-000240	TR-POWER	KSA614-Y,PNP,25W,TO-220,TP,120	
Q632	0501-000140	TR-SMALL SIGNAL	2N5551,NPN,625mW,TO-92	
R201	2001-000290	R-CARBON	10KOHM,5%,1/8W,AA,TP	

Loc. No.	Code No.	Description	Specification	Remarks
R202	2001-000290	R-CARBON	10KOHM,5%,1/8W,AA,TP	
R203	2001-000472	R-CARBON	2.7KOHM,5%,1/8W,AA,TP	
R204	2001-000281	R-CARBON	100OHM,5%,1/8W,AA,TP	
R205	2001-000613	R-CARBON	3.9KOHM,5%,1/8W,AA,TP	
R206	2001-000281	R-CARBON	100OHM,5%,1/8W,AA,TP	
R207	2001-000281	R-CARBON	100OHM,5%,1/8W,AA,TP	
R208	2001-000281	R-CARBON	100OHM,5%,1/8W,AA,TP	
R209	2001-000281	R-CARBON	100OHM,5%,1/8W,AA,TP	
R210	2001-000281	R-CARBON	100OHM,5%,1/8W,AA,TP	
R211	2001-000281	R-CARBON	100OHM,5%,1/8W,AA,TP	
R212	2001-000008	R-CARBON	15KOHM,5%,1/8W,AA,TP	
R213	2001-000281	R-CARBON	100OHM,5%,1/8W,AA,TP	
R214	2001-000281	R-CARBON	100OHM,5%,1/8W,AA,TP	
R215	2001-000281	R-CARBON	100OHM,5%,1/8W,AA,TP	
R216	2001-000281	R-CARBON	100OHM,5%,1/8W,AA,TP	
R217	2001-000515	R-CARBON	220OHM,5%,1/8W,AA,TP	
R218	2001-000869	R-CARBON	56OHM,5%,1/8W,AA,TP	
R219	2001-000869	R-CARBON	56OHM,5%,1/8W,AA,TP	
R220	2001-000613	R-CARBON	3.9KOHM,5%,1/8W,AA,TP	
R221	2001-000660	R-CARBON	33KOHM,5%,1/8W,AA,TP	
R222	2001-000869	R-CARBON	56OHM,5%,1/8W,AA,TP	
R223	2001-000869	R-CARBON	56OHM,5%,1/8W,AA,TP	
R224	2001-000281	R-CARBON	100OHM,5%,1/8W,AA,TP	
R225	2001-000281	R-CARBON	100OHM,5%,1/8W,AA,TP	
R226	2001-000739	R-CARBON	4.7MOHM,5%,1/8W,AA,TP	
R227	2001-000008	R-CARBON	15KOHM,5%,1/8W,AA,TP	
R228	2001-000281	R-CARBON	100OHM,5%,1/8W,AA,TP	
R230	2001-001138	R-CARBON(S)	390OHM,5%,1/2W,AA,TP	
R231	2001-000734	R-CARBON	4.7KOHM,5%,1/8W,AA,TP	
R232	2001-000878	R-CARBON	6.2KOHM,5%,1/8W,AA,TP	
R233	2001-000539	R-CARBON	24KOHM,5%,1/8W,AA,TP	
R234	2001-000281	R-CARBON	100OHM,5%,1/8W,AA,TP	
R235	2001-000734	R-CARBON	4.7KOHM,5%,1/8W,AA,TP	
R236	2001-000947	R-CARBON	7.5KOHM,5%,1/8W,AA,TP	
R237	2001-000734	R-CARBON	4.7KOHM,5%,1/8W,AA,TP	
R238	2001-000008	R-CARBON	15KOHM,5%,1/8W,AA,TP	
R240	2001-000241	R-CARBON	1.5KOHM,5%,1/8W,AA,TP	
R241	2003-000775	R-METAL OXIDE(S)	68ohm,5%,1W,AA,TP,3.3x9	
R242	2001-000008	R-CARBON	15KOHM,5%,1/8W,AA,TP	
R243	2003-000775	R-METAL OXIDE(S)	68ohm,5%,1W,AA,TP,3.3x9	
R244	2003-000659	R-METAL OXIDE(S)	33ohm,5%,1W,AA,TP,3.3x9	
R245	2001-000111	R-CARBON	150OHM,5%,1/4W,AA,TP	
R246	2001-000290	R-CARBON	10KOHM,5%,1/8W,AA,TP	
R247	2001-000290	R-CARBON	10KOHM,5%,1/8W,AA,TP	
R251	2001-000281	R-CARBON	100OHM,5%,1/8W,AA,TP	
R252	2001-000281	R-CARBON	100OHM,5%,1/8W,AA,TP	
R253	2001-000429	R-CARBON	1KOHM,5%,1/8W,AA,TP	

Loc. No.	Code No.	Description	Specification	Remarks
R254	2001-000744	R-CARBON	4.7OHM,5%,1/8W,AA,TP	
R255	2001-000290	R-CARBON	10KOHM,5%,1/8W,AA,TP	
R256	2001-000522	R-CARBON	22KOHM,5%,1/8W,AA,TP	
R257	2001-000429	R-CARBON	1KOHM,5%,1/8W,AA,TP	
R258	2004-004090	R-METAL	6.49Kohm,1%,1/4W,AA,TP,2.5x6.5	
R259	2001-000281	R-CARBON	100OHM,5%,1/8W,AA,TP	
R260	2001-000281	R-CARBON	100OHM,5%,1/8W,AA,TP	
R261	2001-000290	R-CARBON	10KOHM,5%,1/8W,AA,TP	
R262	2001-000281	R-CARBON	100OHM,5%,1/8W,AA,TP	
R263	2001-000290	R-CARBON	10KOHM,5%,1/8W,AA,TP	
R264	2001-000786	R-CARBON	47KOHM,5%,1/8W,AA,TP	
R265	2001-000011	R-CARBON	75KOHM,5%,1/8W,AA,TP	
R266	2001-000734	R-CARBON	4.7KOHM,5%,1/8W,AA,TP	
R268	2001-000563	R-CARBON	27KOHM,5%,1/8W,AA,TP	
R269	2001-000454	R-CARBON	2.2MOHM,5%,1/8W,AA,TP	
R271	2001-000734	R-CARBON	4.7KOHM,5%,1/8W,AA,TP	
R272	2001-000800	R-CARBON	5.1KOHM,5%,1/8W,AA,TP	
R273	2001-000800	R-CARBON	5.1KOHM,5%,1/8W,AA,TP	
R275	2001-000290	R-CARBON	10KOHM,5%,1/8W,AA,TP	
R280	2001-000221	R-CARBON	1.2KOHM,5%,1/8W,AA,TP	
R281	2001-000007	R-CARBON	3KOHM,5%,1/8W,AA,TP	
R282	2001-000812	R-CARBON	5.6KOHM,5%,1/8W,AA,TP	
R283	2001-000221	R-CARBON	1.2KOHM,5%,1/8W,AA,TP	
R284	2001-000007	R-CARBON	3KOHM,5%,1/8W,AA,TP	
R285	2001-000812	R-CARBON	5.6KOHM,5%,1/8W,AA,TP	
R286	2001-000331	R-CARBON	12KOHM,5%,1/8W,AA,TP	
R287	2001-000290	R-CARBON	10KOHM,5%,1/8W,AA,TP	
R303	2004-000532	R-METAL	20Kohm,1%,1/4W,AA,TP,2.4x6.4mm	
R304	2004-000679	R-METAL	2Kohm,1%,1/4W,AA,TP,2.4x6.4mm	
R305	2004-001136	R-METAL	6.8Kohm,1%,1/4W,AA,TP,2.4x6.4m	
R306	2001-000245	R-CARBON	1.5OHM,5%,1/2W,AA,TP	
R308	2005-001064	R-WIRE WOUND	0.9OHM,5%,2W,AA,TP,3.8X11MM	
R309	2004-000344	R-METAL	15Kohm,1%,1/4W,AA,TP,2.4x6.4mm	
R316	2001-000429	R-CARBON	1KOHM,5%,1/8W,AA,TP	
R319	2001-000977	R-CARBON	8.2KOHM,5%,1/8W,AA,TP	
R320	2001-000290	R-CARBON	10KOHM,5%,1/8W,AA,TP	
R321	2001-000591	R-CARBON	3.3KOHM,5%,1/8W,AA,TP	
R332	2001-000281	R-CARBON	100OHM,5%,1/8W,AA,TP	
R401	2001-000110	R-CARBON	10OHM,5%,1/4W,AA,TP	
R402	2001-000645	R-CARBON	330KOHM,5%,1/8W,AA,TP	
R403	2001-000011	R-CARBON	75KOHM,5%,1/8W,AA,TP	
R404	2001-000522	R-CARBON	22KOHM,5%,1/8W,AA,TP	
R405	2001-000539	R-CARBON	24KOHM,5%,1/8W,AA,TP	
R406	2001-000958	R-CARBON	750OHM,5%,1/8W,AA,TP	
R410	2001-000022	R-CARBON(S)	33OHM,5%,1/2W,AA,TP	
R411	2001-000009	R-CARBON	20KOHM,5%,1/8W,AA,TP	
R412	2001-000577	R-CARBON	2KOHM,5%,1/8W,AA,TP	

Loc. No.	Code No.	Description	Specification	Remarks
R414	2003-000468	R-METAL OXIDE(S)	10ohm,5%,1W,AA,TP,3.3x9	
R416	2004-000284	R-METAL	12Kohm,1%,1/4W,AA,TP,2.4x6.4mm	
R417	2004-000532	R-METAL	20Kohm,1%,1/4W,AA,TP,2.4x6.4mm	
R418	2004-004038	R-METAL	4.3Kohm,1%,1/4W,AA,TP,2.4x6.4m	
R419	2001-001187	R-CARBON(S)	75OHM,5%,1/2W,AA,TP	
R420	2001-000812	R-CARBON	5.6KOHM,5%,1/8W,AA,TP	
R421	2001-000890	R-CARBON	6.8KOHM,5%,1/8W,AA,TP	
R422	2008-000147	R-FUSIBLE	22ohm,5%,1/4W,AA,TP,2.6x6.7mm	
R423	2008-000140	R-FUSIBLE	2.2ohm,5%,1/2W,AA,TP,3.5x9.4mm	
R424	2003-002081	R-METAL OXIDE(S)	75ohm,5%,3W,AA,TP,16x6m	
R425	2003-002081	R-METAL OXIDE(S)	75ohm,5%,3W,AA,TP,16x6m	
R426	2001-000515	R-CARBON	220OHM,5%,1/8W,AA,TP	
R428	2001-000625	R-CARBON	330OHM,5%,1/2W,AA,TP	
R429	2003-000422	R-METAL OXIDE(S)	1.2ohm,5%,2W,AA,TP,4x12	
R430	2003-000386	R-METAL OXIDE	910ohm,5%,2W,AA,TP,6x16mm	
R431	2001-000037	R-CARBON(S)	330OHM,5%,1/2W,AA,TP	
R436	2003-002081	R-METAL OXIDE(S)	75ohm,5%,3W,AA,TP,16x6m	
R437	2003-002081	R-METAL OXIDE(S)	75ohm,5%,3W,AA,TP,16x6m	
R438	2001-000273	R-CARBON	100KOHM,5%,1/8W,AA,TP	
R439	2001-000273	R-CARBON	100KOHM,5%,1/8W,AA,TP	
R440	2001-000273	R-CARBON	100KOHM,5%,1/8W,AA,TP	
R442	2001-000411	R-CARBON	18KOHM,5%,1/8W,AA,TP	
R443	2001-000411	R-CARBON	18KOHM,5%,1/8W,AA,TP	
R444	2001-000411	R-CARBON	18KOHM,5%,1/8W,AA,TP	
R445	2001-000411	R-CARBON	18KOHM,5%,1/8W,AA,TP	
R447	2001-000221	R-CARBON	1.2KOHM,5%,1/8W,AA,TP	
R448	2001-000221	R-CARBON	1.2KOHM,5%,1/8W,AA,TP	
R449	2001-000221	R-CARBON	1.2KOHM,5%,1/8W,AA,TP	
R450	2001-000221	R-CARBON	1.2KOHM,5%,1/8W,AA,TP	
R453	2003-000448	R-METAL OXIDE(S)	100Kohm,5%,2W,AA,TP,4x1	
R454	2001-000411	R-CARBON	18KOHM,5%,1/8W,AA,TP	
R455	2001-000221	R-CARBON	1.2KOHM,5%,1/8W,AA,TP	
R456	2001-000273	R-CARBON	100KOHM,5%,1/8W,AA,TP	
R457	2001-000273	R-CARBON	100KOHM,5%,1/8W,AA,TP	
R458	2001-000705	R-CARBON	39OHM,5%,1/2W,AA,TP	
R459	2001-000705	R-CARBON	39OHM,5%,1/2W,AA,TP	
R460	2003-000580	R-METAL OXIDE(S)	220ohm,5%,3W,AA,TP,6x16	
R461	2001-000857	R-CARBON	560OHM,5%,1/8W,AA,TP	
R462	2001-000241	R-CARBON	1.5KOHM,5%,1/8W,AA,TP	
R463	2001-000857	R-CARBON	560OHM,5%,1/8W,AA,TP	
R464	2003-000775	R-METAL OXIDE(S)	68ohm,5%,1W,AA,TP,3.3x9	
R465	2003-000777	R-METAL OXIDE(S)	68ohm,5%,2W,AA,TP,4x12m	
R466	2001-000563	R-CARBON	27KOHM,5%,1/8W,AA,TP	
R467	2003-000557	R-METAL OXIDE(S)	2.2ohm,5%,3W,AA,TP,6x16	
R468	2001-000429	R-CARBON	1KOHM,5%,1/8W,AA,TP	
R501	2001-000281	R-CARBON	100OHM,5%,1/8W,AA,TP	
R502	2001-000045	R-CARBON	1.8KOHM,5%,1/4W,AA,TP	

Loc. No.	Code No.	Description	Specification	Remarks
R503	2003-000703	R-METAL OXIDE(S)	470ohm,5%,3W,AA,TP,6x16	⚠
R504	2001-001072	R-CARBON(S)	12OHM,5%,1/2W,AA,TP	
R505	2003-000760	R-METAL OXIDE(S)	6.8ohm,5%,2W,AA,TP,4x12	
R507	2001-001096	R-CARBON(S)	2.2OHM,5%,1/2W,AA,TP	
R508	2001-000221	R-CARBON	1.2KOHM,5%,1/8W,AA,TP	
R509	2001-000241	R-CARBON	1.5KOHM,5%,1/8W,AA,TP	
R510	2001-000734	R-CARBON	4.7KOHM,5%,1/8W,AA,TP	
R511	2001-000947	R-CARBON	7.5KOHM,5%,1/8W,AA,TP	
R512	2001-000290	R-CARBON	10KOHM,5%,1/8W,AA,TP	
R513	2001-000800	R-CARBON	5.1KOHM,5%,1/8W,AA,TP	
R514	2001-000429	R-CARBON	1KOHM,5%,1/8W,AA,TP	
R515	2001-000800	R-CARBON	5.1KOHM,5%,1/8W,AA,TP	⚠
R516	2004-000979	R-METAL	47Kohm,1%,1/4W,AA,TP,2.4x6.4mm	⚠
R517	2001-000660	R-CARBON	33KOHM,5%,1/8W,AA,TP	⚠
R518	2004-000643	R-METAL	270Kohm,1%,1/4W,AA,TP,2.4x6.4m	⚠
R521	2004-000515	R-METAL	200Kohm,1%,1/4W,AA,TP,2.4x6.4m	⚠
R522	2003-000683	R-METAL OXIDE(S)	4.7Kohm,5%,1W,AA,TP,3.3	
R523	2001-000924	R-CARBON	680OHM,5%,1/8W,AA,TP	
R524	2001-001088	R-CARBON(S)	1KOHM,5%,1/2W,AA,TP	
R551	2003-000006	R-METAL OXIDE	47ohm,5%,1W,AA,TP,4.3x12mm	
R552	2001-000066	R-CARBON(S)	10KOHM,5%,1/2W,AA,TP	
R553	2001-001153	R-CARBON(S)	47OHM,5%,1/2W,AA,TP	
R554	2001-000613	R-CARBON	3.9KOHM,5%,1/8W,AA,TP	
R555	2001-000319	R-CARBON	120KOHM,5%,1/8W,AA,TP	
R556	2001-000045	R-CARBON	1.8KOHM,5%,1/4W,AA,TP	
R557	2001-001195	R-CARBON(S)	82OHM,5%,1/2W,AA,TP	
R558	2001-000686	R-CARBON	390KOHM,5%,1/2W,AA,TP	
R559	2001-000686	R-CARBON	390KOHM,5%,1/2W,AA,TP	
R561	2001-000563	R-CARBON	27KOHM,5%,1/8W,AA,TP	
R562	2001-000734	R-CARBON	4.7KOHM,5%,1/8W,AA,TP	
R563	2001-000006	R-CARBON	2.4KOHM,5%,1/8W,AA,TP	
R601	2001-001129	R-CARBON(S)	330KOHM,5%,1/2W,AA,TP	⚠
R603	2001-000044	R-CARBON	1.2KOHM,5%,1/4W,AA,TP	
R604	2003-000011	R-METAL OXIDE(S)	68Kohm,5%,3W,AA,TP,6x16	
R605	2003-000006	R-METAL OXIDE	47ohm,5%,1W,AA,TP,4.3x12mm	
R606	2003-000507	R-METAL OXIDE(S)	15Kohm,5%,1W,AA,TP,3.3x	
R607	2001-000376	R-CARBON	15OHM,5%,1/8W,AA,TP	
R608	2003-000014	R-METAL OXIDE(S)	10Kohm,5%,3W,AA,TP,6x16	
R609	2001-000034	R-CARBON	220OHM,5%,1/4W,AA,TP	
R610	2003-000741	R-METAL OXIDE(S)	56Kohm,5%,3W,AA,TP,6x16	
R611	2001-000099	R-CARBON	2.2MOHM,5%,1/4W,AA,TP	
R612	2003-000014	R-METAL OXIDE(S)	10Kohm,5%,3W,AA,TP,6x16	
R630	2001-001093	R-CARBON(S)	2.2KOHM,5%,1/2W,AA,TP	
R631	2001-000023	R-CARBON	47OHM,5%,1/4W,AA,TP	
R632	2001-000003	R-CARBON	330OHM,5%,1/8W,AA,TP	
R634	2001-001131	R-CARBON(S)	33KOHM,5%,1/2W,AA,TP	

Loc. No.	Code No.	Description	Specification	Remarks
R635	2003-000448	R-METAL OXIDE(S)	100Kohm,5%,2W,AA,TP,4x1	
R636	2001-000429	R-CARBON	1KOHM,5%,1/8W,AA,TP	
R637	2001-000577	R-CARBON	2KOHM,5%,1/8W,AA,TP	
R638	2001-000577	R-CARBON	2KOHM,5%,1/8W,AA,TP	
R639	2001-000429	R-CARBON	1KOHM,5%,1/8W,AA,TP	
R640	2001-000429	R-CARBON	1KOHM,5%,1/8W,AA,TP	
R641	2001-000258	R-CARBON	1.8KOHM,5%,1/8W,AA,TP	
R642	2001-000004	R-CARBON	200KOHM,5%,1/8W,AA,TP	
R643	2003-000521	R-METAL OXIDE(S)	180Kohm,5%,1W,AA,TP,3.3	⚠
R644	2004-001136	R-METAL	6.8Kohm,1%,1/4W,AA,TP,2.4x6.4m	
R645	2004-000679	R-METAL	2Kohm,1%,1/4W,AA,TP,2.4x6.4mm	⚠
R646	2004-000334	R-METAL	150ohm,1%,1/4W,AA,TP,2.4x6.4mm	⚠
R647	2001-001131	R-CARBON(S)	33KOHM,5%,1/2W,AA,TP	
R649	2001-000429	R-CARBON	1KOHM,5%,1/8W,AA,TP	
RL601	3501-001111	RELAY-POWER	12Vdc,250mW,5A,1FormA,15mS,5	⚠
SK501	4715-000001	SURGE ABSORBER	1KV,+50-10%	
T401	BH26-00010A	TRANS-HOR.DRIVE	4.5MH/133.0UH,8P,EI2519	⚠
T402	BH26-30338F	TRANS-HOR.PULSE	2.0mH/138.0uH/1.0uH,10P	⚠
T403	BH26-00002A	TRANS-H.GATE	520UH,5P,EI-1614,SB-5S,520U	⚠
T501	BH26-30304B	TRANS-HOR.DRIVE	1-8(210UH),8P,EI2218,SB-	⚠
T502	BH26-10336K	TRANS-FBT	638uH,14P,638uH,Y265455	⚠
T503	BH26-30338X	TRANS-HOR.PULSE	2.0mH/31.0uH,10P,EI2820	⚠
T551	BH26-30338Z	TRANS-FOCUS	2.5mH/250.0mH,10P,EI2218,SB-	⚠
T601	BH26-20336M	TRANS-POWER (S/W)	390uH/821uH,18P,EI4042	⚠
T602	BH26-30302M	TRANS-SYNC.	2.5MH,6P,UU1116,SB-5S,2.5MH/	⚠
TH601	1404-001076	THERMISTOR-NTC	8ohm,15%,17mW/C,TP	
VR401	2103-001049	VR-SEMI	100ohm,30%,1/5W,SIDE	
VR501	2103-000454	VR-SEMI	50Kohm,25%,0.3W,SIDE	☢
X201	2801-003739	CRYSTAL-UNIT	24MHZ,30PPM,28-AAM,18PF,20O	
ZD201	0403-000007	DIODE-ZENER	UZ6.2BM,6.2V,6.0-6.4V,500mW	
ZD202	0403-000007	DIODE-ZENER	UZ6.2BM,6.2V,6.0-6.4V,500mW	
ZD203	0403-000007	DIODE-ZENER	UZ6.2BM,6.2V,6.0-6.4V,500mW	
ZD204	0403-000007	DIODE-ZENER	UZ6.2BM,6.2V,6.0-6.4V,500mW	
ZD205	0403-000509	DIODE-ZENER	MTZJ5.6B,5.6V,5.45-5.73V,500	
ZD601	0403-000327	DIODE-ZENER	UZ15BSA,15V,13.48-14.09V,500	
ZD602	0403-001068	DIODE-ZENER	UZ4.7BSA,4.7V,4.47-4.65V,500	
ZD603	0403-000753	DIODE-ZENER	MTZJ27D,27V,26.29-27.64V,500	
	1203-000001	IC-POSI.FIXED REG.	7805,TO-220,3P,PLAS	
	0505-001130	FET-SILICON	IRF740A,N,400V,10uA,550mohm	

7-2 Video PCB Parts

Loc. No.	Code No.	Description	Specification	Remarks
BD01	3301-000011	CORE-FERRITE BEAD	AA,3.5x1.0x5.7mm,1500	
BD02	3301-000011	CORE-FERRITE BEAD	AA,3.5x1.0x5.7mm,1500	
BD03	3301-000011	CORE-FERRITE BEAD	AA,3.5x1.0x5.7mm,1500	
BD04	3301-000011	CORE-FERRITE BEAD	AA,3.5x1.0x5.7mm,1500	
BD05	3301-000011	CORE-FERRITE BEAD	AA,3.5x1.0x5.7mm,1500	
BD07	3301-000011	CORE-FERRITE BEAD	AA,3.5x1.0x5.7mm,1500	
BD08	3301-000011	CORE-FERRITE BEAD	AA,3.5x1.0x5.7mm,1500	
BOTTOM	2202-002009	C-CERAMIC,MLC-AXIAL	100nF,+80-20%,50V,Y5	
C101	2401-000443	C-AL	10uF,20%,25V,GP,TP,5x5mm,2mm	
C102	2202-000706	C-CERAMIC,MLC-RADIAL	470pF,5%,50V,NPO,TP	
C103	2305-000237	C-FILM,MPEF	1uF,5%,63V,TP,7.5x15.5mm,5mm	
C104	2202-002009	C-CERAMIC,MLC-AXIAL	100nF,+80-20%,50V,Y5	
C106	2401-000042	C-AL	100uF,20%,16V,GP,TP,6.3x7,5	
C107	2201-000021	C-CERAMIC,DISC	100nF,+80-20%,50V,Y5V,TP	
C108	2202-000654	C-CERAMIC,MLC-RADIAL	100nF,10%,50V,X7R,T	
C109	2401-000142	C-AL	1000uF,20%,16V,WT,TP,10x20,5	
C110	2202-002009	C-CERAMIC,MLC-AXIAL	100nF,+80-20%,50V,Y5	
C111	2301-000148	C-FILM,PEF	10nF,5%,100V,TP,7x3.2x7mm,5mm	
C112	2401-003003	C-AL	68uF,20%,100V,GP,TP,10x16mm,5m	
C113	2401-000430	C-AL	10uF,20%,250V,GP,TP,10x16mm,5m	
C114	2201-000291	C-CERAMIC,DISC	1nF,10%,500V,Y5P,TP,8.5x5	
C115	2305-000009	C-FILM,MPEF	100nF,5%,250V,TP,13x11x6.5,7	
C116	2401-000010	C-AL	220uF,20%,16V,GP,6.3x11mm,2.	
C117	2401-000814	C-AL	220uF,20%,16V,WT,TP,10x12.5,5	
C124	2401-001872	C-AL	10uF,20%,250V,WT,TP,10x16,5	
C130	2401-000042	C-AL	100uF,20%,16V,GP,TP,6.3x7,5	
C131	2202-002008	C-CERAMIC,MLC-AXIAL	10nF,+80-20%,50V,Y5V	
C133	2401-000042	C-AL	100uF,20%,16V,GP,TP,6.3x7,5	
C137	2201-000573	C-CERAMIC,DISC	47pF,5%,50V,CH,TP,6.5x3.0	
C138	2201-000573	C-CERAMIC,DISC	47pF,5%,50V,CH,TP,6.5x3.0	
C139	2202-002009	C-CERAMIC,MLC-AXIAL	100nF,+80-20%,50V,Y5	
C140	2202-002009	C-CERAMIC,MLC-AXIAL	100nF,+80-20%,50V,Y5	
C141	2401-000037	C-AL	470uF,20%,16V,GP,TP,8x11.5,5	
C142	2202-002009	C-CERAMIC,MLC-AXIAL	100nF,+80-20%,50V,Y5	
C143	2202-002008	C-CERAMIC,MLC-AXIAL	10nF,+80-20%,50V,Y5V	
C146	2401-000029	C-AL	10uF,20%,100V,GP,TP,6.3x11,5	
C147	2401-000042	C-AL	100uF,20%,16V,GP,TP,6.3x7,5	
C148	2202-002009	C-CERAMIC,MLC-AXIAL	100nF,+80-20%,50V,Y5	
C162	2301-000490	C-FILM,PEF	4.7nF,5%,100V,TP,5.8x3.1x12.5	
C163	2202-000669	C-CERAMIC,MLC-RADIAL	10nF,10%,50V,X7R,TP	
C164	2401-000443	C-AL	10uF,20%,25V,GP,TP,5x5mm,2mm	
C165	2202-002009	C-CERAMIC,MLC-AXIAL	100nF,+80-20%,50V,Y5	
C168	2201-000144	C-CERAMIC,DISC	100pF,5%,50V,CH,TP,8x3,5	
C169	2201-000017	C-CERAMIC,DISC	1nF,10%,50V,Y5P,TP,4x3.5	
C170	2401-001509	C-AL	47uF,20%,16V,GP,TP,5x7,2.5mm	
C172	2201-000021	C-CERAMIC,DISC	100nF,+80-20%,50V,Y5V,TP	
C173	2201-000573	C-CERAMIC,DISC	47pF,5%,50V,CH,TP,6.5x3.0	

Loc. No.	Code No.	Description	Specification	Remarks
C174	2201-000573	C-CERAMIC,DISC	47pF,5%,50V,CH,TP,6.5x3.0	
C180	2401-000443	C-AL	10uF,20%,25V,GP,TP,5x5mm,2mm	
C181	2201-000146	C-CERAMIC,DISC	100pF,5%,50V,SL,TP,5x3,5	
C182	2301-000004	C-FILM,PEF	2.2nF,5%,100V,TP,5.5X10X2.9,5	
CB02	2401-000443	C-AL	10uF,20%,25V,GP,TP,5x5mm,2mm	
CB04	2401-000443	C-AL	10uF,20%,25V,GP,TP,5x5mm,2mm	
CB05	2202-000654	C-CERAMIC,MLC-RADIAL	100nF,10%,50V,X7R,T	
CB06	2202-000654	C-CERAMIC,MLC-RADIAL	100nF,10%,50V,X7R,T	
CB10	2305-000009	C-FILM,MPEF	100nF,5%,250V,TP,13x11x6.5,7	
CB11	2305-000009	C-FILM,MPEF	100nF,5%,250V,TP,13x11x6.5,7	
CB12	2202-002009	C-CERAMIC,MLC-AXIAL	100nF,+80-20%,50V,Y5	
CG02	2401-000443	C-AL	10uF,20%,25V,GP,TP,5x5mm,2mm	
CG04	2401-000443	C-AL	10uF,20%,25V,GP,TP,5x5mm,2mm	
CG05	2202-000654	C-CERAMIC,MLC-RADIAL	100nF,10%,50V,X7R,T	
CG06	2202-000654	C-CERAMIC,MLC-RADIAL	100nF,10%,50V,X7R,T	
CG10	2305-000009	C-FILM,MPEF	100nF,5%,250V,TP,13x11x6.5,7	
CG11	2305-000009	C-FILM,MPEF	100nF,5%,250V,TP,13x11x6.5,7	
CG12	2202-002009	C-CERAMIC,MLC-AXIAL	100nF,+80-20%,50V,Y5	
CIS	BH13-10335P	IC-HYBRID	S-PROJECT,VPS14,ZIP,15P,CRT/DR	
CN102	3711-004123	CONNECTOR-HEADER	BOX,15P,1R,2mm,ANGLE,SN	
CN103	3711-004121	CONNECTOR-HEADER	BOX,14P,1R,2mm,ANGLE,SN	
CN104	3711-004127	CONNECTOR-HEADER	BOX,11P,1R,2.5mm,ANGLE	
CR02	2401-000443	C-AL	10uF,20%,25V,GP,TP,5x5mm,2mm	
CR04	2401-000443	C-AL	10uF,20%,25V,GP,TP,5x5mm,2mm	
CR05	2202-000654	C-CERAMIC,MLC-RADIAL	100nF,10%,50V,X7R,T	
CR06	2202-000654	C-CERAMIC,MLC-RADIAL	100nF,10%,50V,X7R,T	
CR10	2305-000009	C-FILM,MPEF	100nF,5%,250V,TP,13x11x6.5,7	
CR11	2305-000009	C-FILM,MPEF	100nF,5%,250V,TP,13x11x6.5,7	
CR12	2202-002009	C-CERAMIC,MLC-AXIAL	100nF,+80-20%,50V,Y5	
D101	0402-000006	DIODE-RECTIFIER	1N4007GP,1000V,1A,DO-41	
D102	0402-000006	DIODE-RECTIFIER	1N4007GP,1000V,1A,DO-41	
D110	0401-000005	DIODE-SWITCHING	1N4148,75V,200MA,DO-35,T	
D180	0401-000005	DIODE-SWITCHING	1N4148,75V,200MA,DO-35,T	
DB01	0401-000005	DIODE-SWITCHING	1N4148,75V,200MA,DO-35,T	
DB02	0401-000005	DIODE-SWITCHING	1N4148,75V,200MA,DO-35,T	
DB03	0401-000005	DIODE-SWITCHING	1N4148,75V,200MA,DO-35,T	
DB04	0401-000005	DIODE-SWITCHING	1N4148,75V,200MA,DO-35,T	
DB05	0401-000006	DIODE-SWITCHING	BAV21,250V,250mA,DO-35,T	
DB06	0401-000006	DIODE-SWITCHING	BAV21,250V,250mA,DO-35,T	
DB07	0401-000006	DIODE-SWITCHING	BAV21,250V,250mA,DO-35,T	
DB08	0401-000005	DIODE-SWITCHING	1N4148,75V,200MA,DO-35,T	
DG01	0401-000005	DIODE-SWITCHING	1N4148,75V,200MA,DO-35,T	
DG02	0401-000005	DIODE-SWITCHING	1N4148,75V,200MA,DO-35,T	
DG03	0401-000005	DIODE-SWITCHING	1N4148,75V,200MA,DO-35,T	
DG04	0401-000005	DIODE-SWITCHING	1N4148,75V,200MA,DO-35,T	
DG05	0401-000006	DIODE-SWITCHING	BAV21,250V,250mA,DO-35,T	
DG06	0401-000006	DIODE-SWITCHING	BAV21,250V,250mA,DO-35,T	

Loc. No.	Code No.	Description	Specification	Remarks
DG07	0401-000006	DIODE-SWITCHING	BAV21,250V,250mA,DO-35,T	
DG08	0401-000005	DIODE-SWITCHING	1N4148,75V,200MA,DO-35,T	
DR01	0401-000005	DIODE-SWITCHING	1N4148,75V,200MA,DO-35,T	
DR02	0401-000005	DIODE-SWITCHING	1N4148,75V,200MA,DO-35,T	
DR03	0401-000005	DIODE-SWITCHING	1N4148,75V,200MA,DO-35,T	
DR04	0401-000005	DIODE-SWITCHING	1N4148,75V,200MA,DO-35,T	
DR05	0401-000006	DIODE-SWITCHING	BAV21,250V,250mA,DO-35,T	
DR06	0401-000006	DIODE-SWITCHING	BAV21,250V,250mA,DO-35,T	
DR07	0401-000006	DIODE-SWITCHING	BAV21,250V,250mA,DO-35,T	
DR08	0401-000005	DIODE-SWITCHING	1N4148,75V,200MA,DO-35,T	
HS1	BH99-10050D	ASSY,HEAT/SINK	H/S IC,SCREW+NUT,VPS14	
IC04	1204-001408	IC-OSD PROCESSOR	KS2501,DIP,24P,300MIL,P	
IC07	1103-001009	IC-EEPROM	24LC21,128x8BIT,DIP,8P,300MIL	
IC1	1001-001071	IC-VIDEO SWITCH	BA7657S,DIP,24P,300MIL	
IC5	1201-001409	IC-VIDEO AMP	2506,DIP,28P,600MIL,SINGLE	
IC6	0801-000337	IC-CMOS LOGIC	74HCT14,SCHIMITT INVERTER	
L101	2701-000179	INDUCTOR-AXIAL	33uH,10%,4.2x9.8mm	
L102	2701-000179	INDUCTOR-AXIAL	33uH,10%,4.2x9.8mm	
L103	2701-000179	INDUCTOR-AXIAL	33uH,10%,4.2x9.8mm	
Q101	0501-000122	TR-SMALL SIGNAL	2N3904,NPN,625mW,TO-92,T	
Q102	0501-000122	TR-SMALL SIGNAL	2N3904,NPN,625mW,TO-92,T	
Q103	0501-000586	TR-SMALL SIGNAL	KSC945,NPN,250mW,TO-92,T	
Q104	0501-000586	TR-SMALL SIGNAL	KSC945,NPN,250mW,TO-92,T	
QB01	0501-000412	TR-SMALL SIGNAL	KSP42,NPN,625mW,TO-92	
QB02	0501-000416	TR-SMALL SIGNAL	KSP92,PNP,625mW,TO-92,TP	
QG01	0501-000412	TR-SMALL SIGNAL	KSP42,NPN,625mW,TO-92	
QG02	0501-000416	TR-SMALL SIGNAL	KSP92,PNP,625mW,TO-92,TP	
QR01	0501-000412	TR-SMALL SIGNAL	KSP42,NPN,625mW,TO-92	
QR02	0501-000416	TR-SMALL SIGNAL	KSP92,PNP,625mW,TO-92,TP	
R101	2001-000773	R-CARBON	470KOHM,5%,1/8W,AA,TP	
R102	2001-000281	R-CARBON	100OHM,5%,1/8W,AA,TP	
R103	2001-000281	R-CARBON	100OHM,5%,1/8W,AA,TP	
R104	2001-000281	R-CARBON	100OHM,5%,1/8W,AA,TP	
R106	2001-000005	R-CARBON	390OHM,5%,1/8W,AA,TP	
R107	2001-000005	R-CARBON	390OHM,5%,1/8W,AA,TP	
R108	2001-000005	R-CARBON	390OHM,5%,1/8W,AA,TP	
R109	2001-000281	R-CARBON	100OHM,5%,1/8W,AA,TP	
R110	2001-000281	R-CARBON	100OHM,5%,1/8W,AA,TP	
R119	2004-000964	R-METAL	470Kohm,1%,1/4W,AA,TP,2.4x6.4m	
R120	2001-000028	R-CARBON(S)	100OHM,5%,1/2W,AA,TP	
R125	2001-000613	R-CARBON	3.9KOHM,5%,1/8W,AA,TP	
R126	2001-000325	R-CARBON	120OHM,5%,1/8W,AA,TP	
R129	2001-000435	R-CARBON	1MOHM,5%,1/8W,AA,TP	
R130	2001-000429	R-CARBON	1KOHM,5%,1/8W,AA,TP	
R131	2001-000666	R-CARBON	33OHM,5%,1/8W,AA,TP	
R132	2001-000666	R-CARBON	33OHM,5%,1/8W,AA,TP	
R133	2001-000666	R-CARBON	33OHM,5%,1/8W,AA,TP	

Loc. No.	Code No.	Description	Specification	Remarks
R135	2001-000435	R-CARBON	1MOHM,5%,1/8W,AA,TP	
R139	2001-000577	R-CARBON	2KOHM,5%,1/8W,AA,TP	
R140	2001-000577	R-CARBON	2KOHM,5%,1/8W,AA,TP	
R147	2001-000554	R-CARBON	270OHM,5%,1/8W,AA,TP	
R148	2001-000554	R-CARBON	270OHM,5%,1/8W,AA,TP	
R150	2001-000042	R-CARBON	1KOHM,5%,1/4W,AA,TP	
R151	2001-000429	R-CARBON	1KOHM,5%,1/8W,AA,TP	
R153	2001-000780	R-CARBON	470OHM,5%,1/8W,AA,TP	
R154	2001-000591	R-CARBON	3.3KOHM,5%,1/8W,AA,TP	
R155	2001-000281	R-CARBON	100OHM,5%,1/8W,AA,TP	
R156	2001-000281	R-CARBON	100OHM,5%,1/8W,AA,TP	
R163	2001-000812	R-CARBON	5.6KOHM,5%,1/8W,AA,TP	
R164	2001-000679	R-CARBON	36KOHM,5%,1/8W,AA,TP	
R165	2001-000281	R-CARBON	100OHM,5%,1/8W,AA,TP	
R166	2001-000780	R-CARBON	470OHM,5%,1/8W,AA,TP	
R167	2001-000325	R-CARBON	120OHM,5%,1/8W,AA,TP	
R168	2001-000878	R-CARBON	6.2KOHM,5%,1/8W,AA,TP	
R169	2001-000554	R-CARBON	270OHM,5%,1/8W,AA,TP	
R171	2001-000429	R-CARBON	1KOHM,5%,1/8W,AA,TP	
R172	2001-000281	R-CARBON	100OHM,5%,1/8W,AA,TP	
R173	2001-000005	R-CARBON	390OHM,5%,1/8W,AA,TP	
R174	2001-000969	R-CARBON	75OHM,5%,1/8W,AA,TP	
R175	2001-000969	R-CARBON	75OHM,5%,1/8W,AA,TP	
R176	2001-000969	R-CARBON	75OHM,5%,1/8W,AA,TP	
R177	2001-000969	R-CARBON	75OHM,5%,1/8W,AA,TP	
R178	2001-000969	R-CARBON	75OHM,5%,1/8W,AA,TP	
R179	2001-000969	R-CARBON	75OHM,5%,1/8W,AA,TP	
R180	2001-000010	R-CARBON	68KOHM,5%,1/8W,AA,TP	
R181	2001-000577	R-CARBON	2KOHM,5%,1/8W,AA,TP	
R182	2001-000666	R-CARBON	33OHM,5%,1/8W,AA,TP	
R183	2001-000869	R-CARBON	56OHM,5%,1/8W,AA,TP	
R184	2001-000869	R-CARBON	56OHM,5%,1/8W,AA,TP	
R185	2001-000869	R-CARBON	56OHM,5%,1/8W,AA,TP	
R186	2001-000008	R-CARBON	15KOHM,5%,1/8W,AA,TP	
R187	2001-000008	R-CARBON	15KOHM,5%,1/8W,AA,TP	
RB01	2001-000666	R-CARBON	33OHM,5%,1/8W,AA,TP	
RB02	2001-000038	R-CARBON	390OHM,5%,1/4W,AA,TP	
RB03	2001-000969	R-CARBON	75OHM,5%,1/8W,AA,TP	
RB05	2001-000290	R-CARBON	10KOHM,5%,1/8W,AA,TP	
RB07	2001-000317	R-CARBON	120KOHM,5%,1/4W,AA,TP	
RB08	2001-000530	R-CARBON	240KOHM,5%,1/4W,AA,TP	
RB09	2001-000660	R-CARBON	33KOHM,5%,1/8W,AA,TP	
RB10	2001-000281	R-CARBON	100OHM,5%,1/8W,AA,TP	
RB11	2001-000969	R-CARBON	75OHM,5%,1/8W,AA,TP	
RB12	2001-000969	R-CARBON	75OHM,5%,1/8W,AA,TP	
RB13	2001-000705	R-CARBON	39OHM,5%,1/2W,AA,TP	
RB14	2001-000563	R-CARBON	27KOHM,5%,1/8W,AA,TP	

Loc. No.	Code No.	Description	Specification	Remarks
RG01	2001-000666	R-CARBON	33OHM,5%,1/8W,AA,TP	
RG02	2001-000038	R-CARBON	390OHM,5%,1/4W,AA,TP	
RG03	2001-000969	R-CARBON	75OHM,5%,1/8W,AA,TP	
RG05	2001-000290	R-CARBON	10KOHM,5%,1/8W,AA,TP	
RG07	2001-000317	R-CARBON	120KOHM,5%,1/4W,AA,TP	
RG08	2001-000530	R-CARBON	240KOHM,5%,1/4W,AA,TP	
RG09	2001-000660	R-CARBON	33KOHM,5%,1/8W,AA,TP	
RG10	2001-000281	R-CARBON	100OHM,5%,1/8W,AA,TP	
RG11	2001-000969	R-CARBON	75OHM,5%,1/8W,AA,TP	
RG12	2001-000969	R-CARBON	75OHM,5%,1/8W,AA,TP	
RG13	2001-000705	R-CARBON	39OHM,5%,1/2W,AA,TP	
RG14	2001-000563	R-CARBON	27KOHM,5%,1/8W,AA,TP	
RR01	2001-000666	R-CARBON	33OHM,5%,1/8W,AA,TP	
RR02	2001-000038	R-CARBON	390OHM,5%,1/4W,AA,TP	
RR03	2001-000969	R-CARBON	75OHM,5%,1/8W,AA,TP	
RR05	2001-000290	R-CARBON	10KOHM,5%,1/8W,AA,TP	
RR07	2001-000317	R-CARBON	120KOHM,5%,1/4W,AA,TP	
RR08	2001-000530	R-CARBON	240KOHM,5%,1/4W,AA,TP	
RR09	2001-000660	R-CARBON	33KOHM,5%,1/8W,AA,TP	
RR10	2001-000281	R-CARBON	100OHM,5%,1/8W,AA,TP	
RR11	2001-000969	R-CARBON	75OHM,5%,1/8W,AA,TP	
RR12	2001-000969	R-CARBON	75OHM,5%,1/8W,AA,TP	
RR13	2001-000705	R-CARBON	39OHM,5%,1/2W,AA,TP	
RR14	2001-000563	R-CARBON	27KOHM,5%,1/8W,AA,TP	
ZD101	0403-000007	DIODE-ZENER	UZ6.2BM,6.2V,6.0-6.4V,500mW	
ZD102	0403-000007	DIODE-ZENER	UZ6.2BM,6.2V,6.0-6.4V,500mW	
ZD103	0403-000007	DIODE-ZENER	UZ6.2BM,6.2V,6.0-6.4V,500mW	
ZD104	0403-000007	DIODE-ZENER	UZ6.2BM,6.2V,6.0-6.4V,500mW	
ZD105	0403-000007	DIODE-ZENER	UZ6.2BM,6.2V,6.0-6.4V,500mW	
ZD106	0403-000007	DIODE-ZENER	UZ6.2BM,6.2V,6.0-6.4V,500mW	
ZD107	0403-000007	DIODE-ZENER	UZ6.2BM,6.2V,6.0-6.4V,500mW	
ZD108	0403-000007	DIODE-ZENER	UZ6.2BM,6.2V,6.0-6.4V,500mW	
ZD109	0403-000007	DIODE-ZENER	UZ6.2BM,6.2V,6.0-6.4V,500mW	
ZD110	0403-000007	DIODE-ZENER	UZ6.2BM,6.2V,6.0-6.4V,500mW	

7-3 CRT Socket PCB Parts

Loc. No.	Code No.	Description	Specification	Remarks
BOTTOM	3301-000011	CORE-FERRITE BEAD	AA,3.5x1.0x5.7mm,1500	
C191	2201-000019	C-CERAMIC,DISC	10nF,+80-20%,500V,Y5V,TP	⚠
C192	2201-000019	C-CERAMIC,DISC	10nF,+80-20%,500V,Y5V,TP	⚠
C193	2201-000288	C-CERAMIC,DISC	1nF,10%,2KV,Y5P,TP,10x5mm	⚠
CN181+CN104	BH39-40366R	CBF-HARNESS	11P,120MM,BLK/WHT/BLU/RED,UL	
GT181	BH71-40300A	PIN-HINGE	BRASS,D2.36,SN,HEAT/SINK	
GT182	BH71-40300A	PIN-HINGE	BRASS,D2.36,SN,HEAT/SINK	
GT185	BH71-40300A	PIN-HINGE	BRASS,D2.36,SN,HEAT/SINK	
GT186	BH71-40300A	PIN-HINGE	BRASS,D2.36,SN,HEAT/SINK	
GT187	BH71-40300A	PIN-HINGE	BRASS,D2.36,SN,HEAT/SINK	
GT188	BH71-40300A	PIN-HINGE	BRASS,D2.36,SN,HEAT/SINK	
LB191	2701-001011	INDUCTOR-AXIAL	220nH,10%,4.2x9.8mm	
LG191	2701-001011	INDUCTOR-AXIAL	220nH,10%,4.2x9.8mm	
LR191	2701-001011	INDUCTOR-AXIAL	220nH,10%,4.2x9.8mm	
R191	2003-000438	R-METAL OXIDE(S)	1.5ohm,5%,3W,AA,TP,6x16	
RB191	2001-001070	R-CARBON(S)	120OHM,5%,1/2W,AA,TP	
RB192	2002-001001	R-COMPOSITION	22ohm,10%,1/2W,AA,TP,3.5x9	
RG191	2001-001070	R-CARBON(S)	120OHM,5%,1/2W,AA,TP	
RG192	2002-001001	R-COMPOSITION	22ohm,10%,1/2W,AA,TP,3.5x9	
RR191	2001-001070	R-CARBON(S)	120OHM,5%,1/2W,AA,TP	
RR192	2002-001001	R-COMPOSITION	22ohm,10%,1/2W,AA,TP,3.5x9	
SK	3704-001036	SOCKET-CRT	13P,15.24PI,29PI,NI+SN	
SKB1	4715-000106	SURGE ABSORBER	300V,210-390V,AXIAL	
SKG1	4715-000106	SURGE ABSORBER	300V,210-390V,AXIAL	
SKG11	4715-000106	SURGE ABSORBER	300V,210-390V,AXIAL	
SKG2	4715-000001	SURGE ABSORBER	1KV,+50-10%	
SKR1	4715-000106	SURGE ABSORBER	300V,210-390V,AXIAL	

7-4 Different Parts List

7-4-1 for Different Model

Model / Loc.	CSE7839	CSE780B	CSE7829	CSE788B	CSE9839	CSE980B	CSE9829	CSE988B
CN206	BH39-40361R	BH39-40361R	–	–	BH39-40361R	BH39-40361R	BH39-40361R	BH39-40361R
CN203	3711-003851	3711-003851	–	–	3711-003851	3711-003851	3711-003851	3711-003851
SW1	–	–	3404-000244	2404-000244	–	–	–	–
SW2	–	–	2404-000244	2404-000244	–	–	–	–
SW3	–	–	2404-000244	2404-000244	–	–	–	–
SW4	–	–	2404-000244	2404-000244	–	–	–	–
SW5	–	–	2404-000244	2404-000244	–	–	–	–
SW6	–	–	3403-001075	3403-001075	–	–	–	–
SW7	–	–	3404-001079	3404-001079	–	–	–	–
OP1	–	–	0601-000334	0601-000334	–	–	–	–
JP287	BH39-40305V	BH39-40305V	–	–	BH39-40305V	BH39-40305V	–	–
CN604	–	–	–	–	–	–	3711-000999	3711-000999
R602	–	–	2003-002112 3W,180KOHM	2003-002112 3W,180KOHM	–	–	2003-002112 3W,180KOHM	2003-002112 3W,180KOHM
R610	2003-000741 3W,56KOHM	2003-000741 3W,56KOHM	–	–	2003-000741 3W,56KOHM	2003-000741 3W,56KOHM	–	–
Q407	0502-001143	0502-001143	0502-001143	0502-001143	0502-001143	0502-001143	0502-001143	0502-001143
R436	2003-002081 3W,75OHM	2003-002081 3W,75OHM	2003-002081 3W,75OHM	2003-002081 3W,75OHM	2003-000830 3W,51OHM	2003-000830 3W,51OHM	2003-000830 3W,51OHM	2003-000830 3W,51OHM
R437	2003-002081 3W,75OHM	2003-002081 3W,75OHM	2003-002081 3W,75OHM	2003-002081 3W,75OHM	2003-000830 3W,51OHM	2003-000830 3W,51OHM	2003-000830 3W,51OHM	2003-000830 3W,51OHM
R424	2003-002142 3W,62OHM,SDD 2003-002081 3W,75OHM,TSB	2003-002142 3W,62OHM,SDD –	2003-002142 3W,62OHM,SDD 2003-002081 3W,75OHM,TSB	2003-002142 3W,62OHM,SDD –	2003-002109 3W,91OHM –	2003-002109 3W,91OHM –	2003-002109 3W,91OHM –	2003-002109 3W,91OHM –
R425	2003-002142 3W,62OHM,SDD 2003-002081 3W,75OHM,TSB	2003-002142 3W,62OHM,SDD –	2003-002142 3W,62OHM,SDD 2003-002081 3W,75OHM,TSB	2003-002142 3W,62OHM,SDD –	2003-002109 3W,91OHM –	2003-002109 3W,91OHM –	2003-002109 3W,91OHM –	2003-002109 3W,91OHM –
Q501	0505-001247 IRFU210A,1.5OHM	0505-001247 IRFU210A,1.5OHM	0505-001247 IRFU210A,1.5OHM	0505-001247 IRFU210A,1.5OHM	0505-001247 IRFU210A,1.5OHM	0505-001247 IRFU210A,1.5OHM	0505-001247 IRFU210A,1.5OHM	0505-001247 IRFU210A,1.5OHM
IC601	BH13-00002A KA2S0880-B	BH13-00002A KA2S0880-B	BH13-00002A KA2S0880-B	BH13-00002A KA2S0880-B	BH13-00002A KA2S0880-B	BH13-00002A KA2S0880-B	BH13-00002A KA2S0880-B	BH13-00002A KA2S0880-B
L601	BH27-20345K 18.0MH,300KHZ	BH27-20345K 18.0MH,300KHZ	BH27-20345K 18.0MH,300KHZ	BH27-20345K 18.0MH,300KHZ	BH27-00003A 11.0MH,400KHZ	BH27-00003A 11.0MH,400KHZ	BH27-00003A 11.0MH,400KHZ	BH27-00003A 11.0MH,400KHZ
C604	2501-000203 275VAC,470NF	2501-000203 275VAC,470NF	2501-000203 275VAC,470NF	2501-000203 275VAC,470NF	2301-001285 275VAC,680NF	2301-001285 275VAC,680NF	2301-001285 275VAC,680NF	2301-001285 275VAC,680NF
R516	2004-000979 47KOHM	2004-000979 47KOHM	2004-000979 47KOHM	2004-000979 47KOHM	2004-000979 47KOHM		2004-000979 47KOHM	

Model / Loc.	CSE7839	CSE780B	CSE7829	CSE788B	CSE9839	CSE980B	CSE9829	CSE988B
R518	2004-000643 270KOHM	2004-000643 270KOHM	2004-000643 270KOHM	2004-000643 270KOHM	2004-000643 270KOHM	2004-000560 220KOHM	2004-000643 270KOHM	2004-000560 220KOHM
C108	2202-000654 C-MONO104,100V	–	2202-000654 C-MONO104,100V	–	2202-000654 C-MONO104,100V	–	2202-000654 C-MONO104,100V	–
CN1	–	3711-002658	–	3711-002658	–	3711-002658	–	3711-002658
R1	–	2001-000591	–	2001-000591	–	2001-000591	–	2001-000591
C1	–	2201-000764	–	2201-000764	–	2201-000764	–	2201-000764
R2	–	2001-000429	–	2001-000429	–	2001-000429	–	2001-000429
Q1	–	0501-000122	–	0501-000122	–	0501-000122	–	0501-000122
C2	–	2202-000654	–	2202-000654	–	2202-000654	–	2202-000654

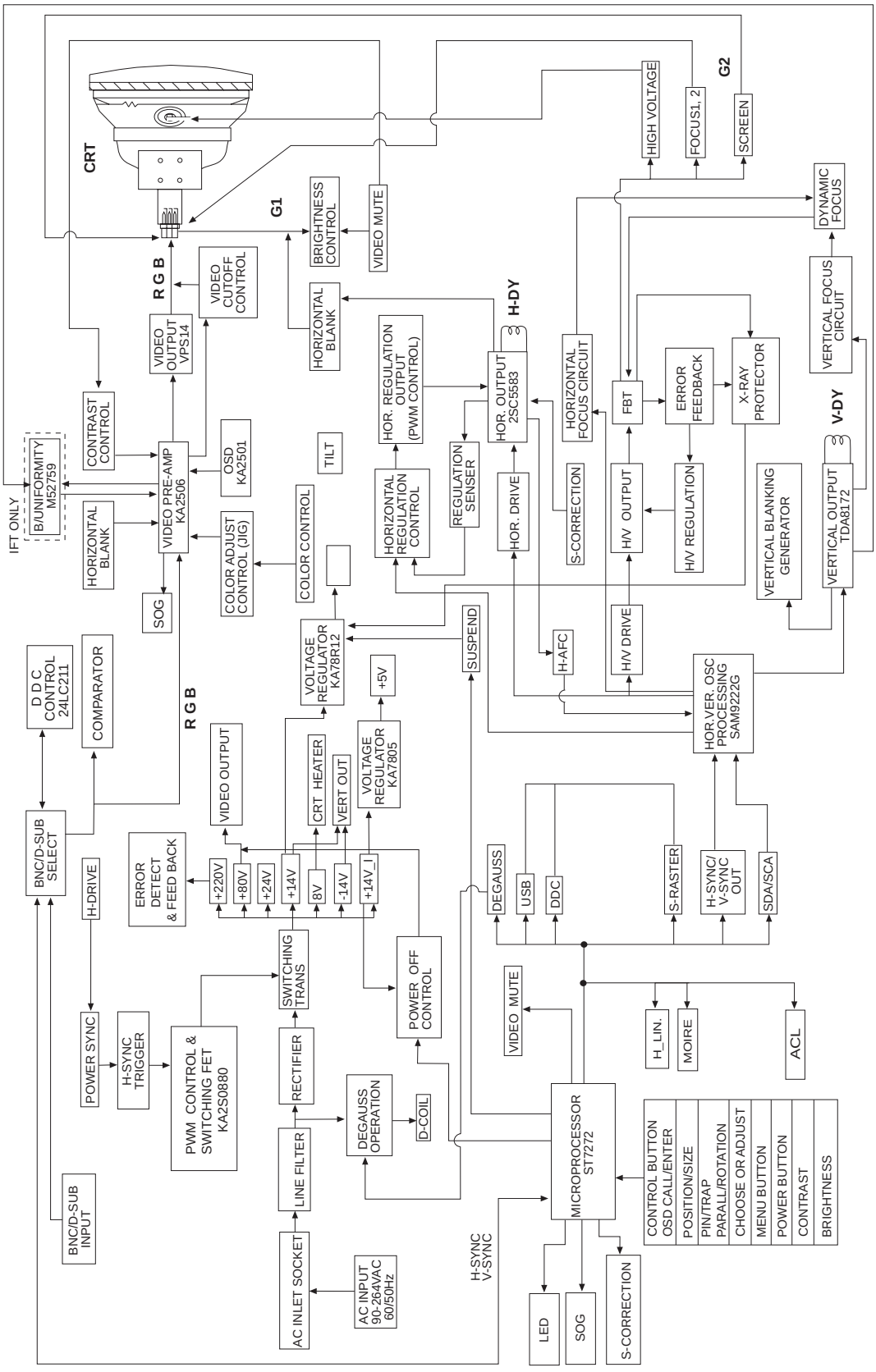
7-5 A Classified Table of Model Files & Model Names According to Basic Models

BASIC MODEL	CDT	COUNTRY	MODEL FILE	MODEL NAME
CSE780B	SDD	KOREA	SE780SK	SE780B SDD KOREA
		EXPORT	SE780SE	SE780B BAS SDD
CSE788B	SDD	KOREA	SE788SK	SE788B SDD KOREA
		EXPORT	SE788SE	SE788B BAS SDD
CSE7829	SDD	KOREA	SE7829SK	SE7829 SDD KOREA
		EXPORT	SE7829SE	SE7829 BAS SDD
	TSB	KOREA	SE7829TK	SE7829 TSB KOREA
		EXPORT	SE7829TE	SE7829 BAS TSB
CSE7839	SDD	KOREA	SE7839SK	SE7839 SDD KOREA
		EXPORT	SE7839SE	SE7839 BAS SDD
	TSB	KOREA	SE7839TK	SE7839 TSB KOREA
		EXPORT	SE7839TE	SE7839 BAS TSB
CSE980B	SDD	KOREA	SE980SK	SE980B SDD KOREA
		EXPORT	SE980SE	SE980B BAS SDD
CSE988B	SDD	KOREA	SE988SK	SE988B SDD KOREA
		EXPORT	SE988SE	SE988B BAS SDD
CSE9829	SDD	KOREA	SE9829SK	SE9829 SDD KOREA
		EXPORT	SE9829SE	SE9829 BAS SDD
	HTC	KOREA	SE9829HK	SE9829 HTC KOREA
		EXPORT	SE9829HE	SE9829 BAS HTC
	TSB	KOREA	SE9829TK	SE9829 TSB KOREA
		EXPORT	SE9829TE	SE9829 BAS TSB
CSE9839	SDD	KOREA	SE9839SK	SE9839 SDD KOREA
		EXPORT	SE9839SE	SE9839 BAS SDD
	HTC	KOREA	SE9839HK	SE9839 HTC KOREA
		EXPORT	SE9839HE	SE9839 BAS HTC
	TSB	KOREA	SE9839TK	SE9839 TSB KOREA
		EXPORT	SE9839TE	SE9839 BAS TSB

Others

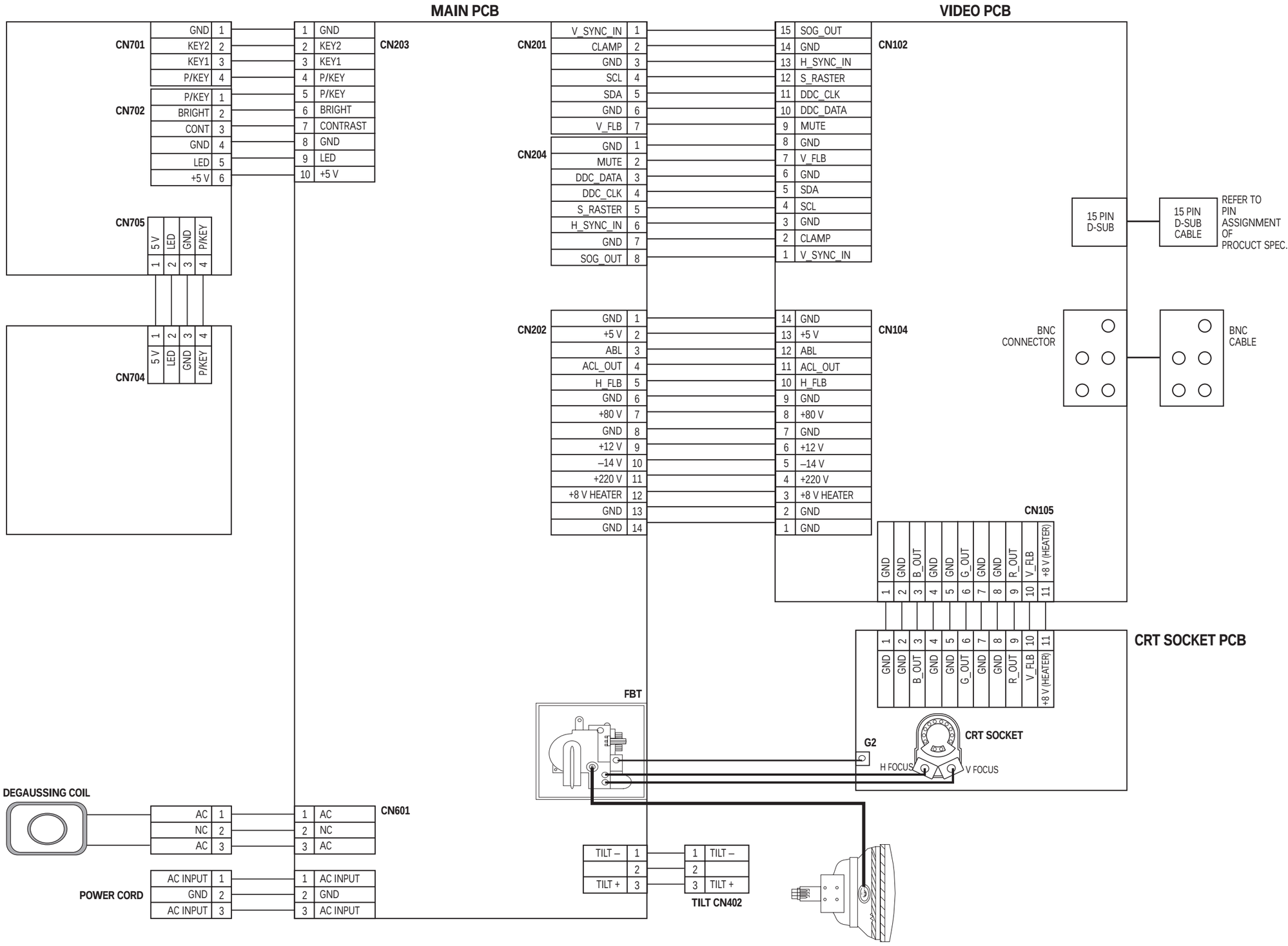
Loc. No.	Code No.	Description	Specification	Remarks
CRT	BH03-10340P	CRT-COLOR	0.25,M41QCJ761X171,DOUBLE,SDD	CSE780B/788B
	BH03-10339A	CRT-COLOR	0.26,M41QAQ261X151(T4),SDD	CSE7839/7829
	BH03-10339L	CRT-COLOR	0.26,M41LLH507XX701(F3),TOSHIBA	CSE7839/7829
	BH03-10340R	CRT-COLOR	0.25,M46QCK761X123,DOUBLE,SDD	CSE980B/988B
	BH03-10342L	CRT-COLOR	0.26,M46QCE261X114(T4),SDD	CSE9839/9829
	BH03-10339S	CRT-COLOR	0.26,M46LLQ683X01(PU),HITACHI	CSE9839/9829
	BH03-10340C	CRT-COLOR	0.28,M46LPA507XX608(F3W3),TOSHIBA	CSE9839/9829
PROCESS-PBA UNIT	BH94-00006A	ASS'Y,PCB	CSE7839T,SDD	
	BH94-00006E	ASS'Y,PCB	CSE7839T,TOSHIBA	
	BH94-00006B	ASS'Y,PCB	CSE780BT	
	BH94-00009A	ASS'Y,PCB	CSE9839T,SDD,HITACHI	
	BH94-00009L	ASS'Y,PCB	CSE9839T,TOSHIBA	
	BH94-00009B	ASS'Y,PCB	CSE980BT	
	BH94-00006K	ASS'Y,PCB	MCM17P1,SDD	
	BH94-00006C	ASS'Y,PCB	CSE7829T,SDD	
	BH94-00009K	ASS'Y,PCB	MCM19P1,SDD	
	BH94-00009E	ASS'Y,PCB	PD55M0L3,TM4896-2,SDD	
	BH94-00009F	ASS'Y,PCB	CSE9P,CSE9B,SDD,HITACHI	
	BH94-00009C	ASS'Y,PCB	CSE9829T,SDD	
	BH94-00006D	ASS'Y,PCB	CSE788B	
	BH94-00009D	ASS'Y,PCB	CSE988B	
B/D ASS'Y CODE	BH98-00006A	ASS'Y,PCB-MAIN	CSE7839T	
	BH98-00006B	ASS'Y,PCB-MAIN	CSE780BT	
	BH98-00009A	ASS'Y,PCB-MAIN	CSE9839T	
	BH98-00009B	ASS'Y,PCB-MAIN	CSE980BT	
	BH98-00007A	ASS'Y,PCB-VIDEO	CSE7839T/9839T	
	BH98-00007B	ASS'Y,PCB-VIDEO	CSE780BT/980BT	
	BH98-00008A	ASS'Y,PCB-SOCKET	CSE7839T/780BT/9839T/980BT	
	BH98-00007C	ASS'Y,PCB-SOCKET	MCM19P1,PD55M0L3,TM4896-2	
P/CORD	BH39-10339Z	CBF-POWER/CORD	DET,RVV3,250V/10A.BLK,18	CHINA
	BH39-10005A	CBF-POWER/CORD	CAP,1200MM,250V/10A,IVY	UK,THAILAND
	BH39-10007A	CBF-POWER/CORD	WALL,1830MM,250V/6A,IVY	SEG,SESA,SEF
	BH39-10339E	CBF-POWER/CORD	DET,SVT,125V 7A/10A,IVY	SEA,SECA
	BH39-10006A	CBF-POWER/CORD	WALL,1830MM,250V/10A,IVY	SEAU
SIGNAL CABLE	BH39-00001A	CBF-SIGNAL	1830MM,15P/15P,IVORY,2990	

8 Block Diagram



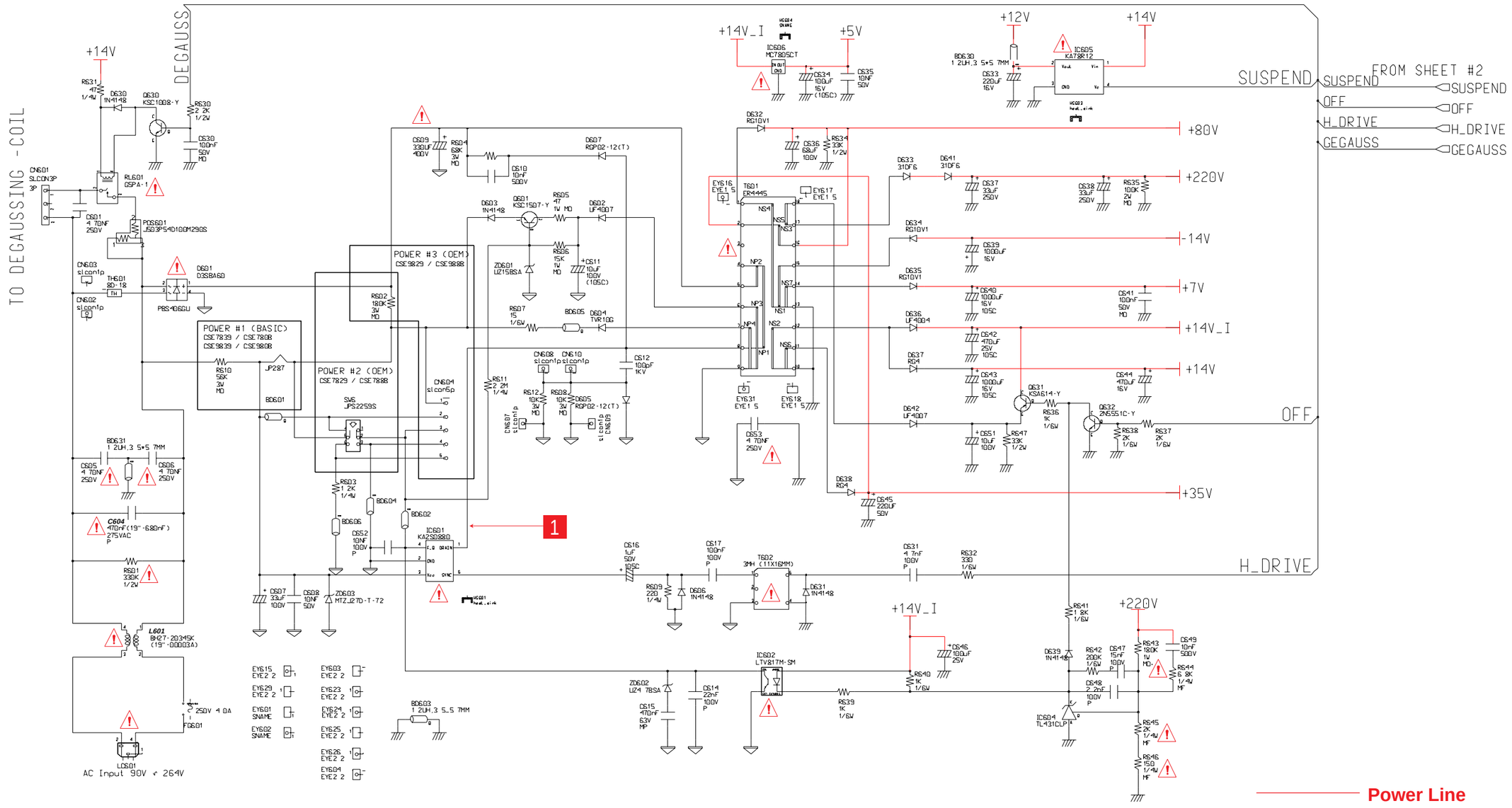
Memo

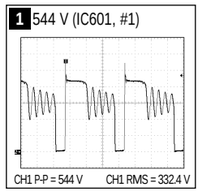
9 Wiring Diagram



10 Schematic Diagrams

10-1 Power Part Schematic Diagram





CSE980B, CSE988B

	S5	S4	S3	S2	S1
~33K	H	H	H	H	H
33~35K	L	H	H	L	L
35~37K	L	H	H	L	L
37~40K	L	L	H	H	H
40~46K	H	H	L	L	L
46~50K	L	H	L	H	L
50~55K	H	L	L	H	H
55~59K	H	L	L	H	L
59~65K	H	L	L	L	H
65~68K	L	L	L	H	L
68~70K	L	L	L	H	H
70~76K	L	L	L	H	H
76~78K	L	L	L	L	H
78~81K	L	L	L	H	L
81~85K	L	L	L	L	H
85~96K	L	L	L	L	L

CSE780B, CSE788B

	S5	S4	S3	S2	S1
~33K	H	H	H	L	H
33~35K	L	H	H	L	H
35~37K	L	H	H	L	H
37~40K	L	L	H	H	H
40~46K	H	H	L	L	L
46~50K	H	L	L	H	H
50~52K	H	L	L	H	H
52~55K	H	L	L	H	H
55~59K	H	L	L	H	L
59~65K	H	L	L	L	H
65~68K	L	L	L	H	L
68~70K	L	L	L	H	H
70~76K	L	L	L	H	H
76~78K	L	L	L	L	H
78~81K	L	L	L	L	H
81~85K	L	L	L	L	H
85~96K	L	L	L	L	L

CSE9839, CSE9829

	S5	S4	S3	S2	S1
~33K	H	H	H	H	H
33~35K	L	H	H	L	H
35~37K	L	H	H	L	H
37~40K	L	L	H	H	H
40~46K	H	H	L	L	L
46~50K	H	L	L	H	H
50~55K	H	L	L	H	H
55~59K	H	L	L	H	L
59~65K	H	L	L	L	H
65~68K	L	L	L	H	L
68~70K	L	L	L	H	H
70~76K	L	L	L	H	H
76~78K	L	L	L	L	H
78~81K	L	L	L	H	L
81~85K	L	L	L	L	H
85~96K	L	L	L	L	L

CSE7839, CSE7829

	S5	S4	S3	S2	S1
~33K	H	H	H	H	H
33~35K	L	H	H	L	H
35~37K	L	H	H	L	H
37~40K	L	L	H	H	H
40~46K	H	H	L	L	L
46~50K	L	H	L	H	L
50~55K	H	L	L	H	H
55~59K	H	L	L	H	L
59~65K	H	L	L	L	H
65~68K	L	L	L	H	L
68~70K	L	L	L	H	H
70~76K	L	L	L	H	H
76~78K	L	L	L	L	H
78~81K	L	L	L	L	H
81~85K	L	L	L	L	H
85~96K	L	L	L	L	L

10-2 Micom & H/V Process Part Schematic Diagram

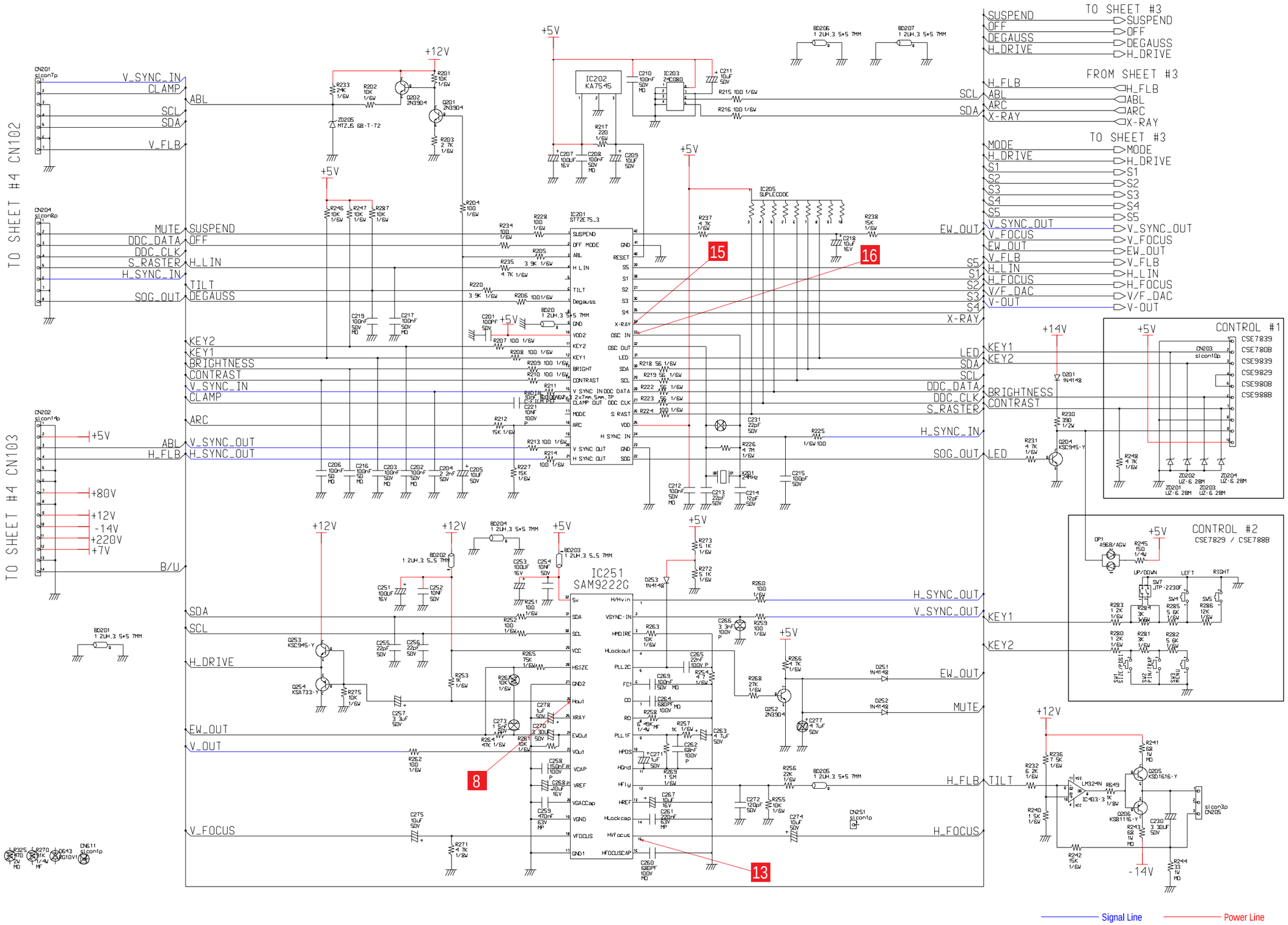
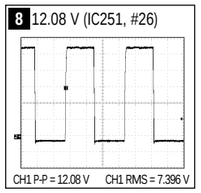
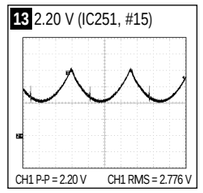


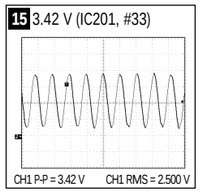
Table 10-1. IC201 (ST72E75)

pin #	MODES			pin #	MODES		
	31 kHz	68 kHz	91 kHz		31 kHz	68 kHz	91 kHz
1	5.05	5.05	5.05	22	5	5.03	5.03
2	0	0	0	23	GND	GND	GND
3	2.18	2.18	2.18	24	4.06	2.75	3.77
4	3.84	4.12	4.23	25	5	5	5
5	NC	NC	NC	26	0	0	0
6	2.32	2.32	2.31	27	5	5	5
7	0	0	0	28	5	5	5
8	NC	NC	NC	29	5	5	5
9	GND	GND	GND	30	5	5	5
10	5.05	5.05	5.04	31	0	0	0
11	5	5	5	32	2.34	2.33	2.28
12	5	5	5	33	2.22	2.22	2.24
13	5	5	5	34	0	0	0
14	5	5	5	35	12	0	0
15	5	0	5	36	12	0	0
16	5	5	5	37	12	12	0
17	NC	NC	NC	38	12	12	0
18	4.73	4.62	4.63	39	12	0	0
19	NC	NC	NC	40	5	5	5
20	0	0	0	41	GND	GND	GND
21	0.6	0.36	0.46	42	2.05	2.62	2.62

Unit: Vrms







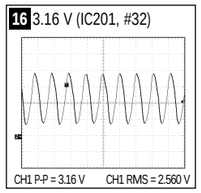


Table 10-2. IC251 (SAM9222G)

pin #	MODES			pin #	MODES		
	31 kHz	68 kHz	91 kHz		31 kHz	68 kHz	91 kHz
1	0.61	0.36	0.46	17	GND	GND	GND
2	0	0	0	18	5.56	5.54	5.54
3	0.17	0.16	0.17	19	GND	GND	GND
4	4.83	4.82	4.82	20	5.46	5.24	5.24
5	3.28	2.69	2.31	21	8.15	8.16	8.16
6	6.41	6.41	6.4	22	3.56	3.56	3.56
7	4.01	4.0	3.99	23	3.56	3.56	3.56
8	1.55	3.39	4.5	24	3.16	3.05	3.05
9	1.55	3.39	4.5	25	2.02	2.01	2.01
10	3.37	3.3	3.29	26	5.06	5.11	5.38
11	GND	GND	GND	27	GND	GND	GND
12	0	0	0	28	3.63	2.49	3.69
13	8.05	8.04	8.04	29	12.02	12.02	12.02
14	8.09	8.03	8.0	30	5.03	5.03	5.03
15	2.74	2.83	2.78	31	5.03	5.03	5.03
16	3.27	3.26	3.24	32	5.04	5.03	5.03

Unit: Vrms

10-3 Main Part Schematic Diagram

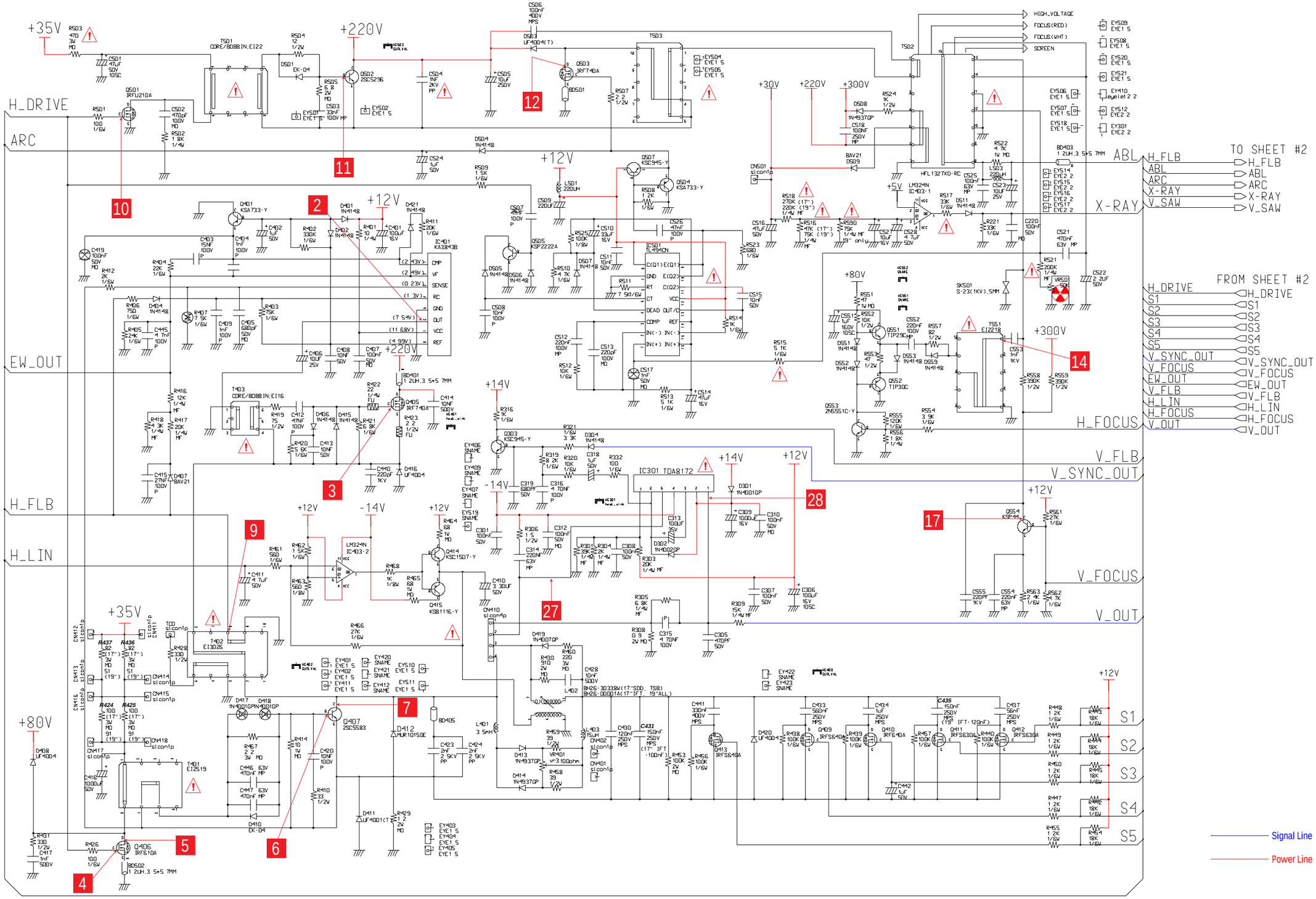


Table 10-3. IC301 (TDA8172)

pin #	MODES		
	31 kHz	68 kHz	91 kHz
1	1.09	1.09	1.08
2	12.43	12.28	12.21
3	9.65	9.65	9.41
4	–13.6	–13.65	–13.65
5	0	0	0
6	11.56	11.65	11.58
7	1.09	1.09	1.09

Unit: Vrms

Table 10-4. IC401 (KA3843)

pin #	MODES		
	31 kHz	68 kHz	91 kHz
1	3.3	2.58	2.3
2	2.5	2.5	2.5
3	0.71	0.41	0
4	1.25	1.41	1.22
5	GND	GND	GND
6	2.12	4.28	5.05
7	11.86	11.86	11.86
8	4.98	4.98	4.98

Unit: Vrms

Table 10-5. IC403 (LM324M)

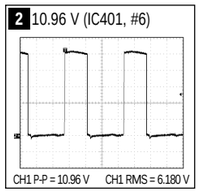
pin #	MODES		
	31 kHz	68 kHz	91 kHz
1	–13.81	–13.65	–13.64
2	5.04	5.04	5.04
3	4.52	4.44	4.41
4	12.02	12.02	12.02
5	3.26	3.26	3.26
6	3.26	3.26	3.26
7	0.97	–1.85	–2.5
8	1.06	1.07	1.07
9	2.02	2.02	2.02
10	2.02	2.02	2.02
11	–13.81	–13.65	–13.64
12	NC	NC	NC
13	NC	NC	NC
14	NC	NC	NC

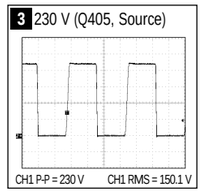
Unit: Vrms

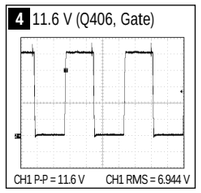
Table 10-6. IC501 (TL494CN)

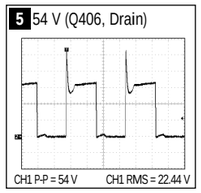
pin #	MODES		
	31 kHz	68 kHz	91 kHz
1	4.86	4.86	4.86
2	4.86	4.86	4.86
3	1.49	1.32	1.29
4	0	0	0
5	0.66	0.61	0.6
6	3.42	3.43	3.42
7	GND	GND	GND
8	11.97	11.96	11.95
9	2.4	3.42	3.67
10	2.4	3.42	3.67
11	11.98	11.96	11.95
12	11.98	11.96	11.95
13	GND	GND	GND
14	4.86	4.86	4.86
15	11.98	11.96	11.95
16	4.86	4.86	4.86

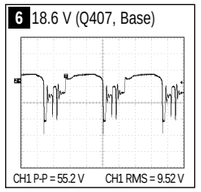
Unit: Vrms

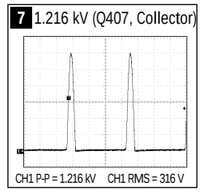


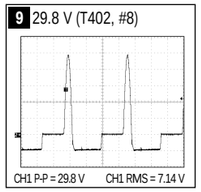


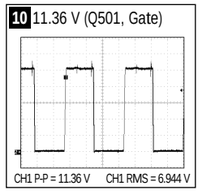


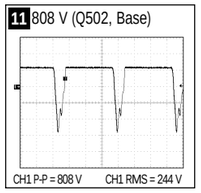


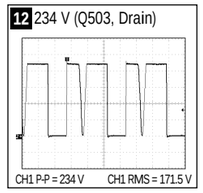


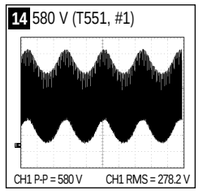


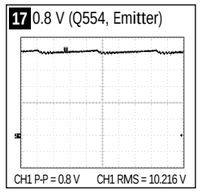


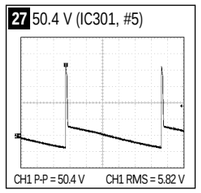


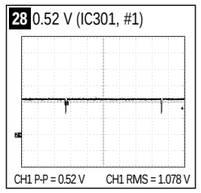












13-4 Video Part Schematic Diagram

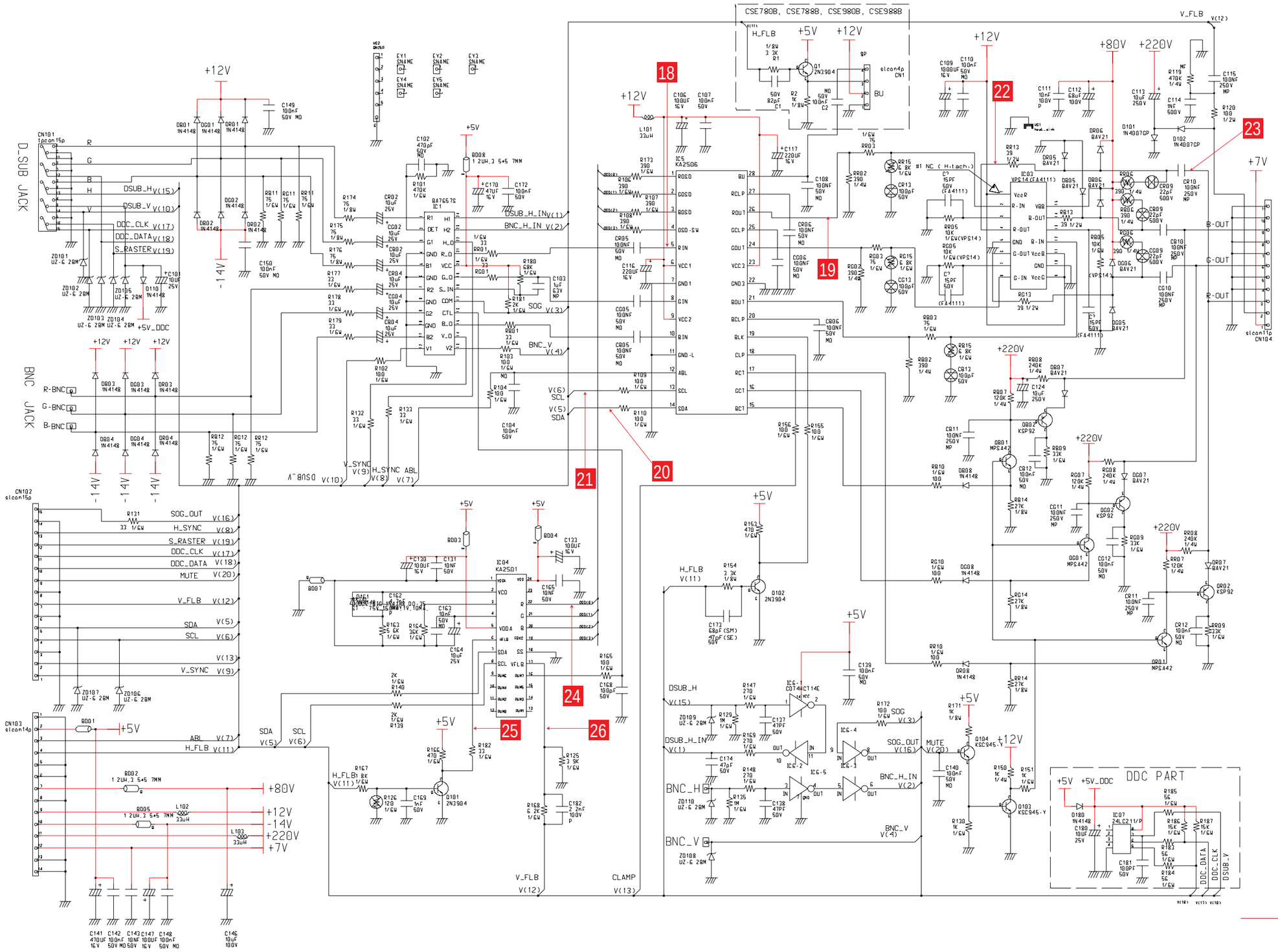


Table 10-7. IC1 (BA7657S)

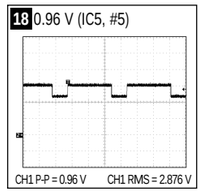
pin #	MODES			pin #	MODES		
	31 kHz	68 kHz	91 kHz		31 kHz	68 kHz	91 kHz
1	3.6	3.6	3.6	13	0	0	0
2	3.5	2.6	2.8	14	5	0	0
3	3.6	3.6	3.6	15	2.1	2.1	2.1
4	GND	GND	GND	16	5	5	5
5	3.6	3.6	3.6	17	0	0	0
6	GND	GND	GND	18	3	3	2.9
7	0	0	0	19	2.1	2.1	2.1
8	GND	GND	GND	20	5	5	5
9	0	0	0	21	2.1	2.2	2.1
10	GND	GND	GND	22	4	0	0.3
11	0	0	0	23	0	0	0
12	4.5	0	0	24	4.4	0.3	0.4

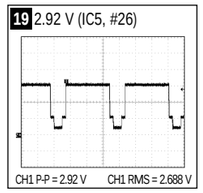
Unit: Vrms

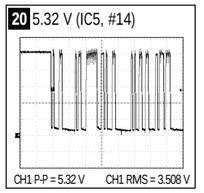
Table 10-8. IC03 (VPS14)

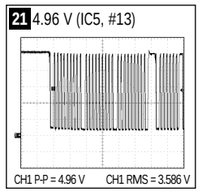
pin #	MODES		
	31 kHz	68 kHz	91 kHz
1	11.9	11.9	11.9
2	2.8	2.7	2.6
3	2.1	2	2
4	45	45	46
5	GND	GND	GND
6	44	46	46
7	2.1	2	2
8	2.7	2.6	2.5
9	11.8	11.8	11.8
10	GND	GND	GND
11	11.8	11.8	11.8
12	2.7	2.6	2.5
13	1.9	1.9	2
14	46	47	47
15	80	80	80

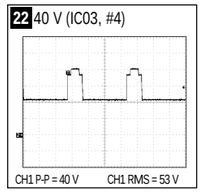
Unit: Vrms

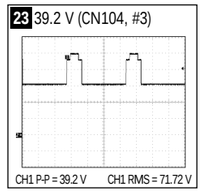


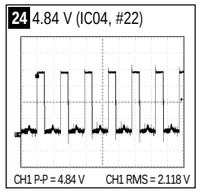


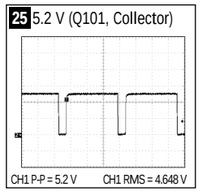












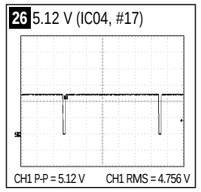


Table 10-9. IC04 (KA2501)

pin #	MODES			pin #	MODES		
	31 kHz	68 kHz	91 kHz		31 kHz	68 kHz	91 kHz
1	GND	GND	GND	13	NC	NC	NC
2	2.3	2.3	2.4	14	NC	NC	NC
3	1.18	1.2	1.2	15	NC	NC	NC
4	1.18	1.2	1.2	16	5	5	5
5	5	5	5	17	4.5	4.6	4.6
6	4.67	4.3	4	18	GND	GND	GND
7	5	5	5	19	0	0	0
8	5	5	5	20	0	0	0
9	NC	NC	NC	21	0	0	0
10	NC	NC	NC	22	0	0	0
11	NC	NC	NC	23	0	0	0
12	NC	NC	NC	24	5	5	5

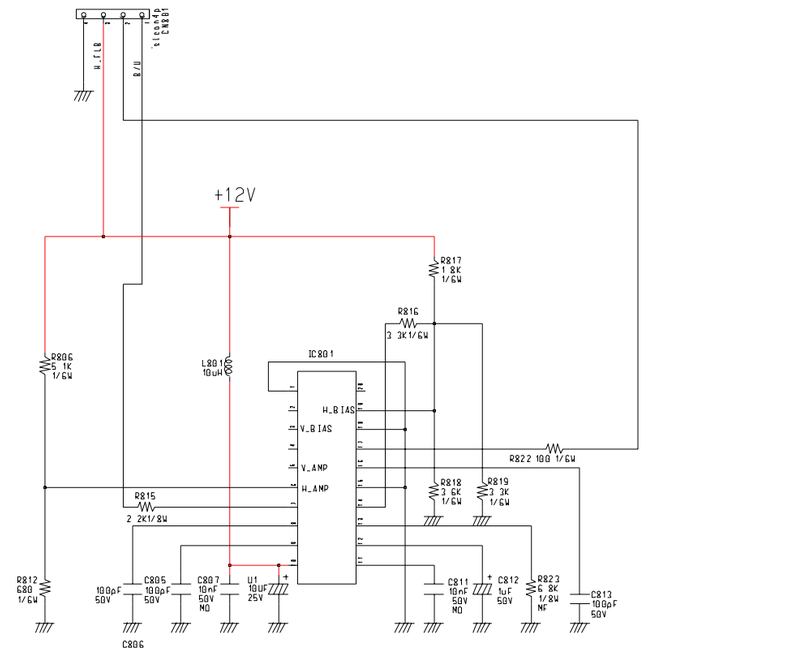
Unit: Vrms

Table 10-10. IC5 (KA2506)

pin #	MODES			pin #	MODES		
	31 kHz	68 kHz	91 kHz		31 kHz	68 kHz	91 kHz
1	0	0	0	15	10.7	10.7	10.7
2	0	0	0	16	10.8	10.7	10.7
3	0	0	0	17	10.8	10.7	10.7
4	0	0	0	18	4.9	5.0	4.8
5	2.4	2.3	2.3	19	4.6	4.3	4.0
6	11.8	11.7	11.7	20	4.5	4.6	4.6
7	GND	GND	GND	21	2.5	2.6	2.5
8	2.4	2.3	2.3	22	GND	GND	GND
9	11.8	11.7	11.7	23	11.8	11.7	11.7
10	2.4	2.3	2.3	24	2.6	2.6	2.5
11	GND	GND	GND	25	4.6	4.6	4.6
12	3.9	3.9	3.9	26	2.6	2.6	2.5
13	5	5	4.7	27	4.6	4.7	4.6
14	5	5	5	28	4.5	4.5	4.5

Unit: Vrms

IFT Only



13-5 CRT Socket & Control Part Schematic Diagram